MADRIX RADAR User Manual

[Software User Guide]

Version: MADRIX RADAR 1.2.

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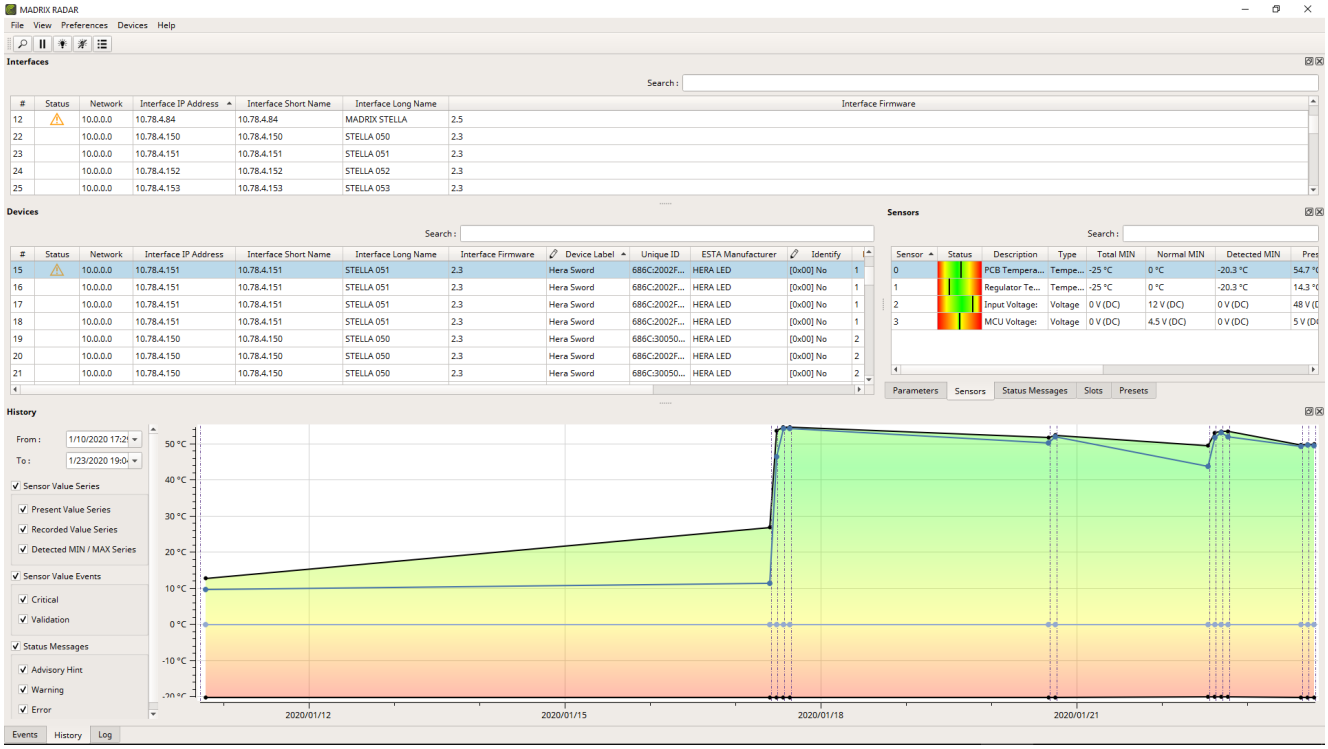
MADRIX
LIGHTING CONTROL

//PART 1

Introduction

1 Introduction



Welcome To MADRIX RADAR

Manage, configure, and monitor your RDM devices remotely and automatically, and receive regular status updates and notifications. MADRIX RADAR is the essential tool for intelligent and automatic Remote Device Management [RDM].

Thank you for choosing MADRIX!

How To Use This User Guide

- Press ***F1*** on your keyboard while working with the application to quickly call up the MADRIX RADAR Help and Manual.
- **LINKS** are displayed in this color. Simply click through and you will be taken to the corresponding part within the same topic.

- »LINKS will take you away from the topic which your are currently reading to another section in this guide or to an external website.
- This user guide is written in English.

Topics Of This Chapter

- »Glossary
- »System Requirements
- »License Model
- »About
- »Web Links

1.1 Preamble

This topic includes:

- **Basic Concepts**
- **Using MADRIX RADAR Software & Differences Between MADRIX 5 And MADRIX RADAR**

Basic Concepts

MADRIX RADAR packs and organizes RDM into an easy-to-use software tool. That means that most of the functionality is based on the RDM standard and the possibilities it does and does not provide.

RDM stands for Remote Device Management, which already describes it very well. It is about changing the settings, organizing, monitoring, and working with devices from afar. Lighting fixtures can be RDM devices, but not all RDM devices are necessarily lighting fixtures. There are many more types of RDM devices.

RDM [ANSI E1.20] is built on the DMX512 standard [DMX512-A – ANSI E1.11]. It only functions on the DMX line.

In order to be able to use MADRIX RADAR and any of its features, all involved devices on the DMX line need to support RDM. If devices do not support RDM, RDM cannot be used and devices cannot be managed with RADAR. Do not expect any lighting fixture [or any other device] to automatically support RDM. It also does not mean that all DMX512 devices automatically support RDM.

It depends on each device which RDM features are supported [such as sensors, DMX start address, DMX personality, etc.]. RDM only requires a few details as the minimum that should be reported back upon receiving a request. In this way, actual RDM support could be severely limited. On the other hand, there are many features a manufacturer could implement. RADAR relies on the data and settings a device provides via RDM. It can only work with the information it receives from the device. Such data is only provided by the device upon request.

Again, RDM is built on DMX512. DMX512 itself has its own limitations. Nowadays and especially for large projects, the Art-Net standard is often used to overcome some of those major limits. That still means that RDM itself only works on the DMX line. But Art-Net makes it possible to forward it on an Ethernet-based network. RADAR uses RDM over Art-Net. This data tunnel is referenced as the ArtRdm subcategory within Art-Net.

1] MADRIX RADAR's role in the world of RDM is that it sends commands and data requests to RDM Responders via ArtRdm [Manager]. Requests are queries sent out to receive back information from RDM devices. Commands are used to remotely set parameters and settings of RDM devices.

2] The role of MADRIX STELLA, as an example of a DMX controller, is that it transmits commands and requests to RDM Responders and back [Art-Net Node / RDM Controller]. In this way, STELLA supports ArtRdm as well as DMX RDM.

3] The third major component is the RDM device itself, which acts on commands and replies to requests with data via DMX RDM [RDM Responder].

There could be additional RDM devices in this line of communication, such as DMX512 RDM splitters on the DMX line, which are called in-line devices.

All involved devices [such as software, controller, and device] need to support RDM. Otherwise, it will not work.

MADRIX RADAR does not support any other protocols, only RDM and Art-Net, and more specifically RDM over Art-Net [so-called ArtRdm].
Learn more »**Technical Standards**

Using MADRIX RADAR Software &
Differences Between MADRIX 5 And MADRIX RADAR

Overview

If you have used MADRIX 5 before, you will have noticed that both software applications 'feel' very differently. That is because they are. We are trying to explain some of the key differences here.

Live Control

MADRIX 5 is built for live control. Interactions with the software [such as changing a color] should be doable as quickly as possible [with minimum possible wait time, and without requiring unnecessary confirmations]. It provides the possibilities to instantly create, manipulate, and design. It was built for **Lighting Control**. MADRIX 5 is much more about actively initiating a desired outcome.

Device Management

In comparison, MADRIX RADAR works completely differently. It is made for **Device Management**. It mainly shows the current status of your devices. For example, you can manually change many settings with the help of buttons and usually a small LCD display on your lighting fixture itself, such as the DMX start address, right? Those are the settings you can possibly change with RADAR with remote access. You can perform any configuration conveniently from your computer; instead of requiring direct access to the devices themselves in the truss, in the ceiling, or on the facade. And the software always informs you how these settings are currently set. RADAR is about changing configurations, but much more about passively monitoring the current situation.

Database

The user interface of RADAR shows the current status of your devices as reported back by those RDM devices, with information that has been received [there could be inquiries and responses that were lost], with data that has been stored in the database. Working with a large amount of information in a database, sending out requests, and receiving back responses simply takes time. That is why RADAR is not designed for extremely fast interactions. All those settings that can be managed usually do not require immediate changes anyways. It is much more important to receive information, and to reliably and consistently show the devices' status in a timely manner of seconds, minutes, hours, and days; not milliseconds. It is a much more asynchronous workflow.

Using a database also means that there is no setup file to be saved or similar. RDM devices and their information are all stored in the database. And it depends on which database management system you have selected in the options, how the data is stored. For example, the default setting is SQLite In Main Memory, which means that the data is lost once you close the software. In contrast, SQLite File and PostgreSQL Server are options for permanent storage.
Learn more »**Database**

Visual Feedback For Edits

RADAR reports back the current status of any changes you made to an RDM device via the GUI with the help of colored labels. It is not showing live data per se, but uses yellow to indicate that the request has been sent to the RDM device. It uses green in case the device reported back that settings have been changed successfully and red if the changes could not be set or if the request timed out. That means you might need to wait shortly before your changes are applied. Also, make sure to confirm any changes by clicking away from the selection or simply use the Enter key on the keyboard.

Features Of RDM Devices

There are many types of RDM devices. Devices report back which features and settings they offer. If a device does not support identification, you will not able to highlight it with RADAR. Such visual identification is a mode that the device needs to offer as one of its settings. Highlight Device in MADRIX 5, on the other hand, is a software feature that simply sends DMX value 255 on all color channels [full-on white]. Because MADRIX 5 is about using lighting fixtures to control their color and intensity output, it is something the software can offer. RADAR cannot offer software features for RDM

devices they are not offering themselves, since the manufacturer needs to have the features implemented on the devices' hardware level and firmware level.

That means that different views of RADAR [***Parameters***, ***Sensors***, ***Status Messages***, ***Slots***, ***Presets***] might not contain any information or data because the device does not support it.

DMX Universe

RDM does not know about the DMX universe. RDM works on the DMX line. And a single line does not know about the DMX universe either. That is why you may only set up the DMX start address on a lighting fixture, for example. Only when using more DMX lines, the concept of several lines evolved into DMX universes, which then became a setting of the DMX controller. That is why you cannot change the DMX universe within RADAR. With MADRIX nodes however, such as MADRIX STELLA, you can call up the web configuration to change it there [***Interfaces*** view ***> Right Mouse Click*** on an interface ***> Open Interface Configuration Via HTTP...***].

Lists

RADAR possibly needs to manage a lot of devices and therefore a lot of data. The main method to organize and present this information on the user interface is lists. You can customize how these lists look like, by changing which column is used for sorting, plus changing the order from ascending to descending or vice versa. You can also decide which columns to show or hide. And you can use the Search bar as filter to quickly find what you are looking for.

List Of Devices

The main view of RADAR is the list of Devices. In order to add your devices to the list, RADAR needs to send out a request [menu Devices > Discover Devices]. Once they show up in the list, this also means that they first had been added to the database. The user interface represents these data entries.

If you want to remove a device, you will have to do it manually. There is value in knowing when devices have **not** been found or do **not** respond anymore. When using RADAR, you surely want to know if that is the case, because this often means that something is wrong. Removing items from the list automatically would remove them without your

knowledge, and this important information would be lost. But knowing about such issues is why RADAR is used in the first place.

If you have physically removed devices from your project, you can remove them from RADAR and its database as well [***Devices*** view ***> Right Mouse Click*** on a device ***> Delete***].

Devices

RADAR uses the connection path to distinguish between different devices [Network – Node – Universe – ID]. For example, if you have connected the same fixture to two different RDM controllers or to the same controller with two different universe assignments and let RADAR search for the RDM device in each case, the same device shows up twice in the list of Devices. If only the unique ID would be used, they would only show up once since the device's ID is already in the list. But as explained above, this would not suffice, since devices are not and should not be removed automatically [or removed and re-added in this case].

Patch And Patch Editor

The Patch Editor of MADRIX 5 and the Patch Editor of RADAR also work very differently. The Patch in the Patch Editor of MADRIX RADAR only represents the logical order of DMX addresses. It does not show the physical layout of the lighting setup, for example. This is an information which RDM devices do not and simply cannot provide. The Patch Editor in MADRIX 5, in contrast, defines how the fixtures should be arranged or it represents how fixtures are already physically arranged. Here is a tip: Make sure to select the correct universe and correct network device in the Patch Editor of RADAR first or you may be confronted with many warning messages that might only apply to the current view options, but the settings are correct nevertheless.

Log

The log itself is much more prominent compared to MADRIX 5. Messages and errors in the log might only be for your information. It could show what a device might not support, but creates an error since it may be required by the RDM standard as default information to provide. Any information provided in the log needs your careful inspection and

reasoning to determine how relevant it is for you. The Events view might offer much more actionable insights.
Learn more »**Events**

1.2 Glossary

Art-Net

Art-Net is a communication protocol that allows to distribute DMX512 data over Ethernet network. Often, so-called Art-Net nodes then act as Ethernet-to-DMX512 converters and hardware interfaces. MADRIX STELLA is such an Art-Net node, for example.

DMX512

DMX512, often abridged to DMX, is an unidirectional communication protocol used mainly to control lighting luminaires, which use 5-pin XLR connectors as defined by the standard. 3-pin connectors are also common, but not defined as standard connectors.
When working with DMX-based products, each fixture needs a specific attribution via its DMX channel and its DMX universe. With the specific DMX channel and DMX universe, the LED product can be identified directly for a correct communication with the fixture.

DMX Channel

A total of 512 DMX channels is available per DMX universe. Each DMX channel is an individual control channel. Valid values range from 0 to 255, with a total of 256 values.

DMX Universe

A DMX universe contains 512 DMX channels and represents 1 DMX line. To control more than 512 DMX channels, more than 1 DMX universes need to be used. For example, 2 DMX universes represent 1024 DMX channels.

For example, you can control 170 **RGB** fixtures per DMX universe. That means, calculating 170 fixtures x 3 channels results in 510 DMX channels. Therefore, channel 511 and 512 will be left empty.
And if your are using more then 170 fixtures, those DMX channels will be assigned to a new DMX universe [e.g., DMX universe 2].

IP Address

Is an identifier for devices that enables network communication. It is hosted in the Internet protocol on Layer 3 of the OSI model. When using network protocols, it needs to be set up for each individual sender or recipient in the network. Art-Net and MADRIX RADAR only use TCP/IPv4.

MAC Address

Is a unique, technical identifier for devices in a network and assigned by the manufacturer. It is used in Layer 2 of the OSI model.

RDM [Remote Device Management]

In its base variant defined as 'ANSI E1.20 - 2010, Entertainment Technology - RDM - Remote Device Management Over DMX512 Networks'. A two-way means of communicating with DMX512 devices that allows not only to send instructions, but to receive data back from the device.

Subnet Mask

Is a technical grouping mechanism for network devices that relate to the IP address. When using the Internet protocol, it needs to be set up for each sender or recipient in the network for correct data routing.

1.3 System Requirements

This topic includes:

Supported Operating Systems

- Microsoft Windows 10
- 64 bit only.

- Please keep the system, drivers, and updates up to date.

Minimum System Requirements

- 2.0 GHz dual-core CPU
- 2 GB RAM
- 1 GB free harddisk space
- 1280 x 768 screen resolution
- Network card
- USB 2.0

Recommended Computer Specifications

- At least a 2.0 GHz dual-core CPU or better
- 4 GB RAM or higher
- 2 TB SSD or higher
- 1920 x 1080 screen resolution or higher
- Network card
- USB 2.0

General Requirements

- **For the general functionality, the following is required:**
  - Devices that are compatible with RDM.
  - Having those devices connected over Art-Net to interfaces/nodes that are compatible with RDM [ArtRdm].
  - Learn more »**Technical Standards**

Optional Requirements

Depending on your use-cases, you may need to meet the following requirements:

- **For automatic event notifications [that is, e-mail messages]:**
  - An active Internet connection.
  - This connection should be separated from the network card that is used for the RDM communication.
- **In case of using MADRIX RADAR with MADRIX RDM nodes:**
  - MADRIX STELLA with at least minimum firmware version 2.3.7261. [It is recommended to always use the latest firmware version.]
- **In case of using MADRIX RADAR with RDM nodes of third-party manufacturers:**
  - A MADRIX KEY with a valid MADRIX RADAR fusion license [fusion small, fusion medium, fusion large].
  - **Learn more**
- **For the Big Data features:**
  - A MADRIX KEY with a valid MADRIX RADAR big data license.
  - Installation of the PostgreSQL Database management system; in at least version 11.
  - Having created a suitable database within PSQL and setting up the corresponding settings in MADRIX RADAR.
  - **Learn more**
- **When using MADRIX RADAR as well as MADRIX 5:**
  - It is recommended to run both applications on separate computer systems. Learn more **below**

Separate Computers

When using MADRIX RADAR as well as MADRIX 5, it is recommended to run both applications on separate computer systems due to the following reasons:

- **Performance – CPU**

  - MADRIX 5 mainly requires CPU performance, especially when controlling large matrices or 3D projects.
  - Using two separate systems ensures that MADRIX 5 can utilize the power of the main processor as required.
  - The more CPU power is available, the better.
  - When using two computers, MADRIX RADAR does not cause additional CPU load, which frees up resources for MADRIX 5.

- **Performance – Physical Memory [RAM]**

  - MADRIX RADAR mainly requires RAM, especially when managing a large number of RDM devices.
  - Using two separate systems ensures that MADRIX RADAR has as much access to memory as required.
  - The higher the amount of memory that is available, the better.
  - When using two computers, MADRIX 5 does not require additional memory, which frees up resources for MADRIX RADAR.

- **Performance – Network Card**

  - MADRIX RADAR uses the network card and its available bandwidth and performance since it communicates over Ethernet network [RDM over Art-Net, i.e. ArtRdm]. The more devices MADRIX RADAR manages, the higher the requirements.
  - MADRIX 5 would also use the Ethernet-based Art-Net control protocol in this case, which would also require the resources of the network card. The higher the pixel resolution and number of LED fixtures, the higher the requirements.
  - In order to achieve the highest performance as well as the best reliability and stability of the network, two computers with separate network cards are recommended.
  - [Using two network cards in one computer adds load to the internal bus system and large projects may already require usage of several network cards for MADRIX 5.]

- **Network Communication – Shared Data Socket**

  - Regarding communication over Art-Net and thus an Ethernet-based communication, the Windows operating only allows the first network application to send and receive network data. All other applications can only send data.
  - That means on a single computer system, MADRIX RADAR needs to be launched first. Otherwise, no RDM data can be received.
  - On the other hand, while MADRIX 5 would be started afterwards as second application, it would not be able to find Art-Net nodes automatically, since it is able to send the polling packet, but would not be able to receive the

reply. Nodes need to be added manually in this case.

- For your own convenience and in order to prevent technical issues, two separate computers are recommended.

Contact

Please contact us if you require more information. »Imprint And Copyright

1.4 License Model

This topic includes:

Introduction

MADRIX RADAR is a commercial software product that requires a valid license in order to be able to fully use it.

Please learn more below.

License Model

MADRIX RADAR is an independent software that allows you to choose compatible RDM nodes.

You gain the enormous advantage with MADRIX RDM nodes of running a fully integrated system. Our MADRIX hardware processes RDM data packages in a way that does not result in interference with DMX data packages during full and live operation, which could lead to visual flickering or other signal interruptions. MADRIX interfaces manage these data streams highly efficiently and intelligently.

	MADRIX RDM Nodes	Third-Party RDM Nodes & MADRIX RADAR License			
Software License	**No additional software license is required.**	**Demo**	**MADRIX RADAR fusion small**	**MADRIX RADAR fusion medium**	**MADRIX RADAR fusion large**
RDM Devices/Sub-Devices	**All connected devices are automatically unlocked for free.**	**2**	**64**	**512**	**4,096**
Management	Yes	Yes	Yes	Yes	Yes
Configuration	Yes	Yes	Yes	Yes	Yes
Monitoring	Yes	Yes	Yes	Yes	Yes
					

- Learn more about »**MADRIX RADAR fusion licenses**
- In addition, you can opt for the separate »**MADRIX RADAR big data license**

Demo Mode

When using third-party RDM nodes, MADRIX RADAR offers a demo mode. As such, you can download the latest MADRIX RADAR Software to test for free at »**www.madrix.com**

What are the features of the Demo Mode?

- You can test MADRIX RADAR for free.
- The software is functional [within the demo limitations and license limitations].
- Demo mode is useful for evaluation and tests.
- Files and settings are fully compatible with the full version [it is the same software].
- If no valid license is provided/connected, MADRIX RADAR runs in demo mode.

What are the limitations of the Demo Mode?

- Only 2 RDM devices/sub-devices are fully unlocked to send RDM requests to or receive from.
- Any other devices connected to third-party RDM nodes are locked and cannot not be managed, configured, or monitored.

<Not Available>	<Not Available>	<Not Available>

- Big Data features are not available.
- If using MADRIX RDM nodes or providing a MADRIX RADAR fusion license, these 2 devices will not be unlocked additionally.

MADRIX RDM Nodes

- All RDM devices and RDM sub-devices that are connected through MADRIX RDM nodes are automatically unlocked and licensed in the software.
- Learn more »**MADRIX Hardware**
- Learn more »**MADRIX STELLA**

Third-Party RDM Nodes & MADRIX RADAR fusion License

MADRIX RADAR fusion Licenses

- Require a valid, metallic MADRIX KEY.
- Online activation is initially required one time. Learn more »**Online License Activation**
- It is possible to have a MADRIX RADAR fusion license and a MADRIX RADAR big data license on a single MADRIX KEY.

The MADRIX RADAR fusion licenses are available as:

- ***MADRIX RADAR fusion small***
  [Unlocks up to 64 RDM devices/sub-devices in the software.]
- ***MADRIX RADAR fusion medium***
  [Unlocks up to 512 RDM devices/sub-devices in the software.]

- ***MADRIX RADAR fusion large***
  [Unlocks up to 4,096 RDM devices/sub-devices in the software.]

MADRIX RADAR License Upgrades

- Upgrade your MADRIX RADAR fusion license on your MADRIX KEY to a higher license in order to unlock more RDM devices/sub-devices.
- Online activation is initially required one time. Learn more »**Online License Activation**
- Require a valid and metallic MADRIX KEY with a MADRIX RADAR fusion license.

MADRIX RADAR big data License

MADRIX RADAR big data License

- Require a valid, metallic MADRIX KEY.
- Online activation is initially required one time. Learn more »**Online License Activation**
- It is possible to have a MADRIX RADAR fusion license and a MADRIX RADAR big data license on a single MADRIX KEY.

This license is available as:

- ***MADRIX RADAR big data***
  [Is available as separate license, which can be renewed. Unlocks the Big Data features for 1 year for MADRIX RADAR.]

MADRIX KEY

MADRIX KEY

The MADRIX KEY is a USB dongle.
It needs to be connected to your computer. Only then, it activates the license it provides for software.

You will require and receive a MADRIX KEY, when purchasing a MADRIX RADAR fusion License [or MADRIX RADAR big data license].

Online License Activation

Please activate your MADRIX KEY first, when using the MADRIX RADAR Software for the first time [or when having acquired a MADRIX RADAR License or MADRIX RADAR License Upgrade].

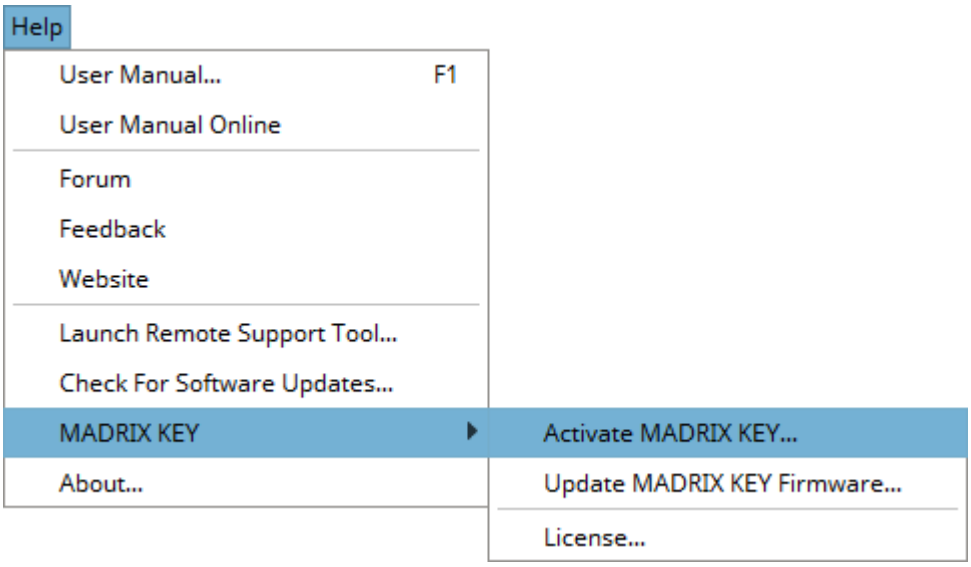
Please follow the steps described below:

1] Make sure you are online. An active internet connection is required for the activation.

2] Download the latest MADRIX RADAR Software from www.madrix.com

3] Install the MADRIX RADAR Software and then connect the MADRIX KEY to your computer.

4] Start MADRIX RADAR now and go to the menu ***Help > MADRIX KEY > Activate MADRIX KEY...***

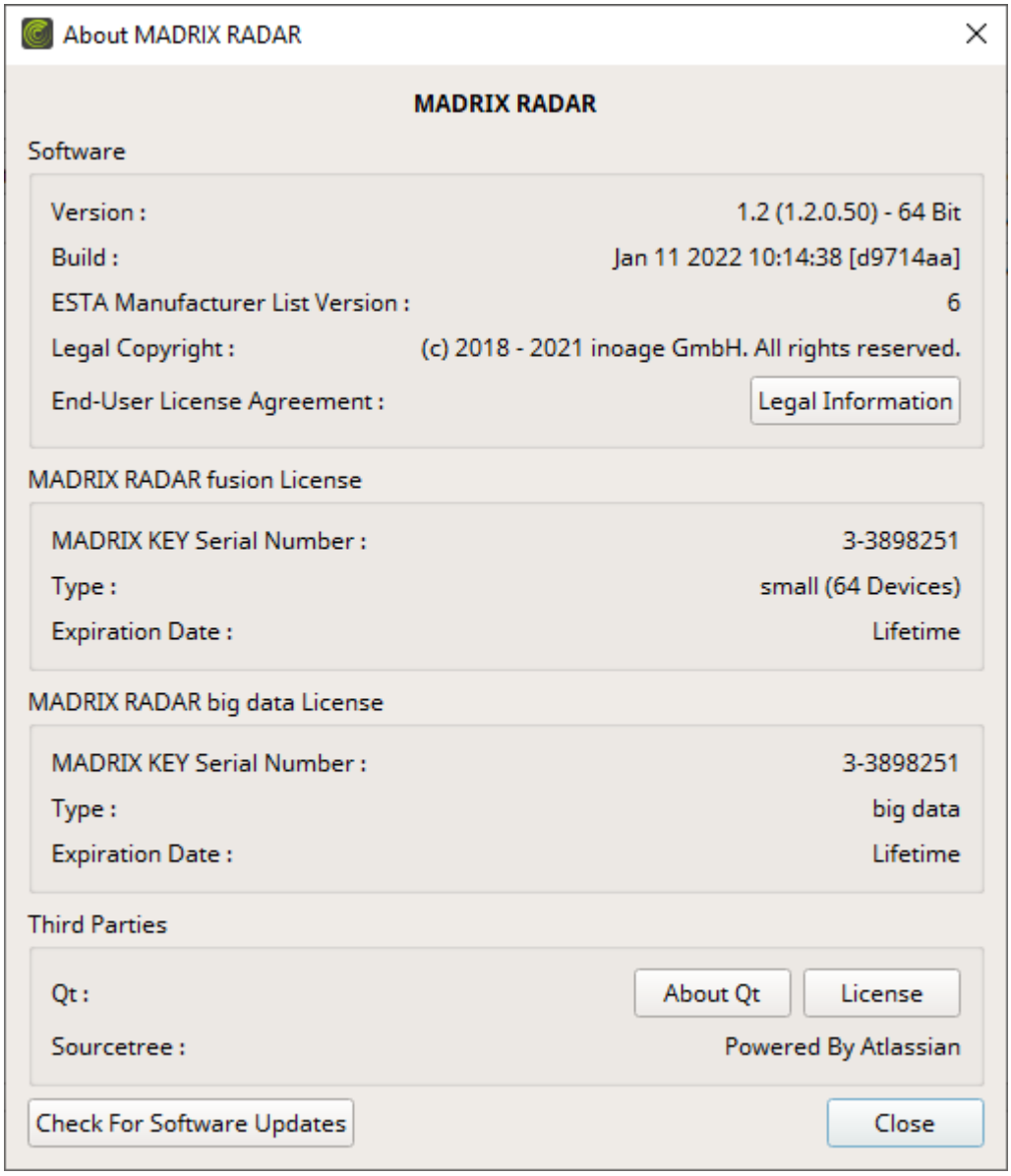


5] Enter your ticket number and follow the on-screen instructions.

License Check

You can check which MADRIX RADAR licenses your MADRIX KEY provides.

- Start the MADRIX RADAR Software.
- Go to the menu ***Help > About...***
- A new window will open.



- ***MADRIX RADAR fusion License***

  - ***MADRIX KEY Serial Number -*** Shows the serial number of the MADRIX KEY that holds the MADRIX RADAR fusion license.

  [Shows ***Not Available*** if no MADRIX KEY has been recognized, can be found, or is available.]

  - ***Type -*** Shows which kind of fusion license is provided [***small (64 Devices)***, ***medium (512 Devices)***, ***large (4096 Devices)***].

  [Shows ***Not Available*** if no MADRIX RADAR fusion license has been recognized, can be found, or is available.]

  - ***Expiration Date -*** Shows the **date and time** in the future until the license is valid. If this deadline is

reached, the license will no longer be valid.
[Shows ***Lifetime*** if the license does not expire. Shows ***Not Available*** if no MADRIX RADAR fusion license has been recognized, can be found, or is available.]

- ***MADRIX RADAR big data License***
  - ***MADRIX KEY Serial Number -*** Shows the serial number of the MADRIX KEY that holds the MADRIX RADAR big data license.
  [Shows ***Not Available*** if no MADRIX KEY has been recognized, can be found, or is available.]
  - ***Expiration Date -*** Shows the **date and time** in the future until the license is valid. If this deadline is reached, the license will no longer be valid.
  [Shows ***Lifetime*** if the license does not expire. Shows ***Not Available*** if no MADRIX RADAR big data license has been recognized, can be found, or is available.]

- **Please note:** It is possible that a single MADRIX KEY holds both licenses, a MADRIX RADAR fusion license as well as a MADRIX RADAR big data license. If that is the case, the same MADRIX KEY serial number will be shown.

Important Information

- **The MADRIX KEY is an extremely important item when having bought one or more software licenses. Do not lose it!**
- **A MADRIX KEY is not bound to one computer and can be used with other computers. But it only provides the corresponding license on the computer it is connected to.**
- **Do not connect the MADRIX KEY to your computer before installing the MADRIX RADAR Software.**
- **If you connect several MADRIX KEYs with different MADRIX RADAR fusion licenses, the first license that is recognized will be used.**

Interruption-Free Operation

To ensure interruption-free operation of the software and devices, please make sure to check the power saving settings of Windows.
Learn more »**PC Power Management**

End-Of-Life

This electrical device and its accessories need to be disposed of properly. Do not throw the device into normal trash or household waste. Please recycle packaging material whenever possible.

1.5 About

This topic includes:

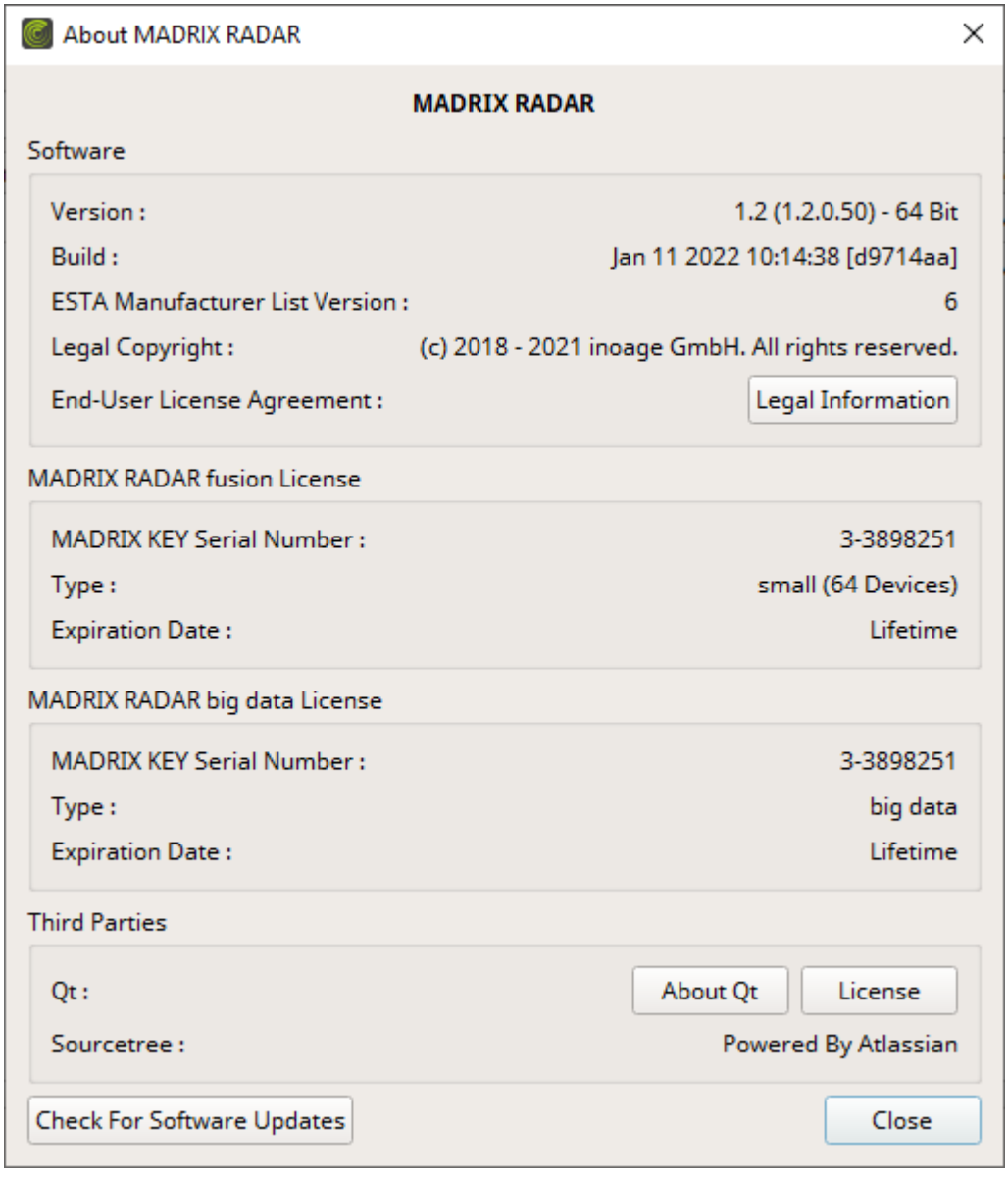
- **Introduction**
- **Overview**

Introduction

The About window provides a quick overview over software details, licensing information, and legal information.

- Go to the menu ***Help > About...***

Overview


About MADRIX RADAR
MADRIX RADAR
Software
Version : 1.2 (1.2.0.50) - 64 Bit
Build : Jan 11 2022 10:14:38 [d9714aa]
ESTA Manufacturer List Version : 6
Legal Copyright : (c) 2018 - 2021 inoage GmbH. All rights reserved.
End-User License Agreement : Legal Information
MADRIX RADAR fusion License
MADRIX KEY Serial Number : 3-3898251
Type : small (64 Devices)
Expiration Date : Lifetime
MADRIX RADAR big data License
MADRIX KEY Serial Number : 3-3898251
Type : big data
Expiration Date : Lifetime
Third Parties
Qt : About Qt License
Sourcetree : Powered By Atlassian
Check For Software Updates
Close

Software

Version	Shows which software version you are currently running and using. It also shows the used software architecture: MADRIX RADAR is 64-bit only.
Build	Shows when the current software version was created.
ESTA Manufacturer List Version	Shows which version of the provided ESTA Manufacturer List the software is currently using.
Legal Copyright	© inoage GmbH. See »**Imprint And Copyright**
End-User License Agreement	Opens this user guide, which includes the End-User License Agreement. See »**End-User License Agreement [EULA]**

MADRIX RADAR fusion License

MADRIX KEY Serial Number	Shows the serial number of the MADRIX KEY that holds the MADRIX RADAR fusion license. Shows ***Not Available*** if no MADRIX KEY has been recognized, can be found, or is available.
Type	Shows which kind of fusion license is provided [***small (64 Devices)***, ***medium (512 Devices)***, ***large (4096 Devices)***]. Shows ***Not Available*** if no MADRIX RADAR fusion license has been recognized, can be found, or is available.
Expiration Date	Shows the **date and time** in the future until the license is valid. If this deadline is reached, the license will no longer be valid. Shows ***Lifetime*** if the license does not expire.

Shows ***Not Available*** if no MADRIX RADAR fusion license has been recognized, can be found, or is available.

MADRIX RADAR big data License

MADRIX KEY Serial Number

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Shows ***Lifetime*** if the license does not expire.
Shows ***Not Available*** if no MADRIX RADAR big data license has been recognized, can be found, or is available.

Third Parties

Qt

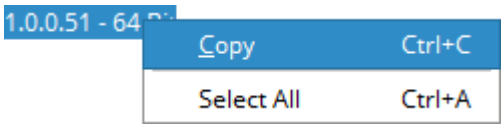
About Qt - Shows more information about the Qt development framework.

View License - Shows the license under which Qt is used.

Sourcetree

Is a Git client program used for development with thanks. Powered by Atlassian.

Miscellaneous



Left Mouse Click + Hold + Select / Left Mouse Double-Click / Left Mouse Triple-Click - Allows you to select text.

Right Mouse Click > Copy - Allows you to copy text in order to paste the information into an e-mail, for example.

Check For Software Updates Checks online if a software update or new ESTA Manufacturer List is available for downloading. This requires an active internet connection.

Close Closes the About window.

1.6 Web Links

This topic includes:

Overview

You can find a selection of useful internet links here:

- MADRIX Website
  »www.madrix.com
- Downloads
  »www.madrix.com/support/download
- User Guides [Online And Downloadable PDF]
  »help.madrix.com
- Online Forum
  »www.madrix.com/support/forum

- Software Release Notes

  »www.madrix.com/products/software/releases

MADRIX
LIGHTING CONTROL

//PART 2

Getting Started

2 Getting Started

This topic includes:

Introduction

Learn in this chapter how to

- install and start the MADRIX RADAR Software.
- create a stable operation environment.

Topics Of This Chapter

2.1 Installation Process

This topic includes:

Important Information

- **Please note regarding Purchased Products, Demo Mode, and Updates:**

  - The MADRIX RADAR Software can be downloaded from »www.madrix.com. Software updates will be also released online.

  - If no license is unlocked, the software will run in demo mode. Learn more »License System

- **It is highly recommended to always use the latest software update.**

Using The MADRIX USB Flash Drive

When using a MADRIX USB flash drive for the installation process, please connect the drive to a free USB port of your operational computer. The MADRIX RADAR setup will start automatically using an Auto Installer. Please wait until the setup has fully loaded. Then, proceed with the Setup Process as described below. When the Auto Installer does not launch, please navigate to the drive in Windows and manually start the setup process by performing a double-click on ***MADRIX_RADAR_Install.exe***

Downloading The Software Online

- Download ***MADRIX_RADAR_Install.exe*** from »www.madrix.com
- After downloading the installer, please double-click with your mouse on this file in order to start the setup process.
- Please wait while the Auto Installer is loading the setup.
- Afterwards, proceed with the Setup Process as described below.

Setup Process

Please make sure to:

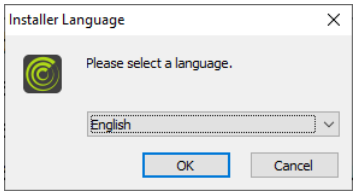
1] Log into Windows as administrator [Admin].

2] Let the computer process the setup. This may take some minutes depending on the speed of your computer.

3] Allow Windows to install all drivers. Windows may ask for your permission to install drivers and expects your confirmation. Please search for such pop-up windows; they might have opened in the background and might be covered by other windows.

4] If available, connect your MADRIX KEY before you start a software update [not during the first installation]. In this way, the MADRIX KEY firmware can automatically be updated if required.

Please install the MADRIX RADAR Software before you connect a MADRIX KEY.

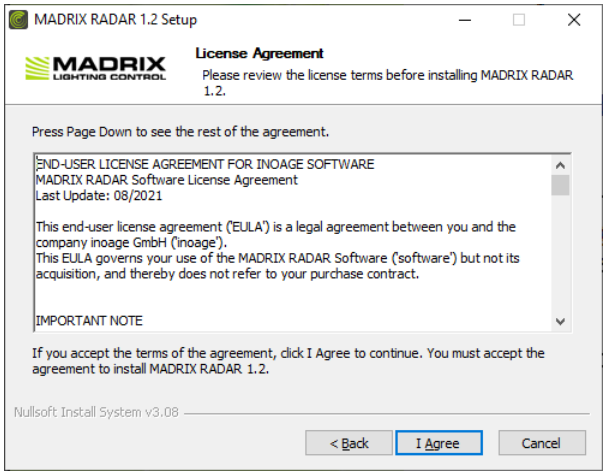


Step 1]

- Please select your preferred language and confirm with ***OK***
- You can always quit the setup by clicking ***Cancel***

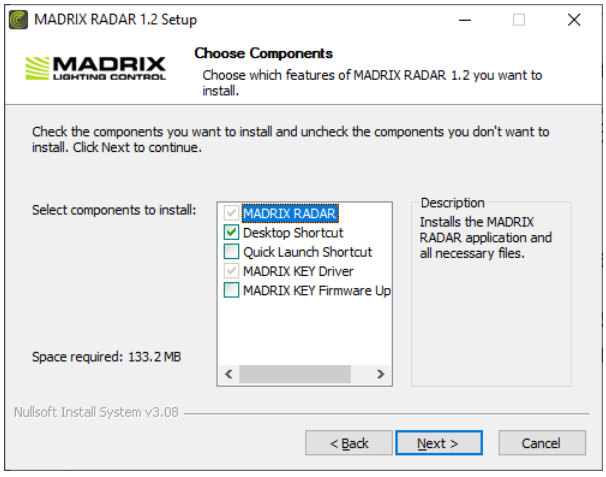
Step 2]

- Click ***Next*** to start the installation.
- Click ***Back*** in order to return to a previous step during the setup process.



Step 3]

- The ***License Agreement*** will appear. It outlines the terms you are agreeing to by installing the software. You must accept these terms in order to continue.
- Please click ***I Agree***



Step 4]

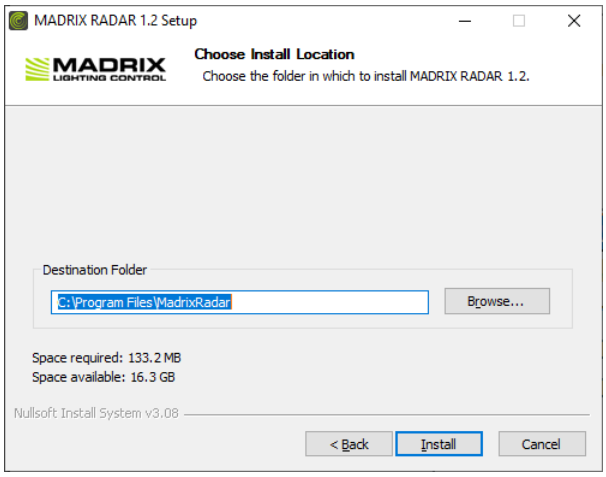
- This window allows you to select which components and which drivers you want to install. A description is given for each item.
- ***MADRIX RADAR*** **-** Is a required component. It refers to the MADRIX RADAR Software.
- ***Desktop Shortcut*** **-** Select if you wish to create a shortcut to the software on your Windows desktop. By default, the component is selected.

- ***Quick Launch Shortcut -*** Select if you wish to create a shortcut to the software in your Windows taskbar. By default, the component is not selected.

- ***MADRIX KEY Driver -*** Is a required component. Installs the MADRIX KEY driver.

- ***MADRIX KEY Firmware Update -*** Select if you wish to install the latest firmware on connected USB protection dongles. Please disconnect any unwanted dongles if you select the option.

- ***Next -*** Click Next after choosing the components in order to continue.

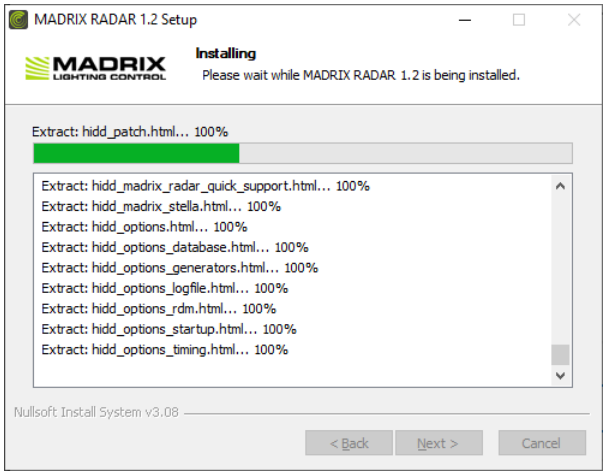


Step 5]

- Choose an installation directory on your hard drive where the software will be installed. A default ***Destination Folder*** will automatically be provided by the setup.

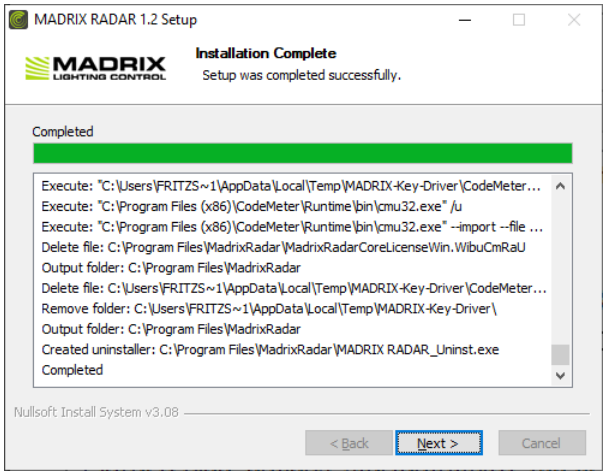
- ***Browse... -*** Click to change the folder.

- ***Install -*** Click to start the installation process.

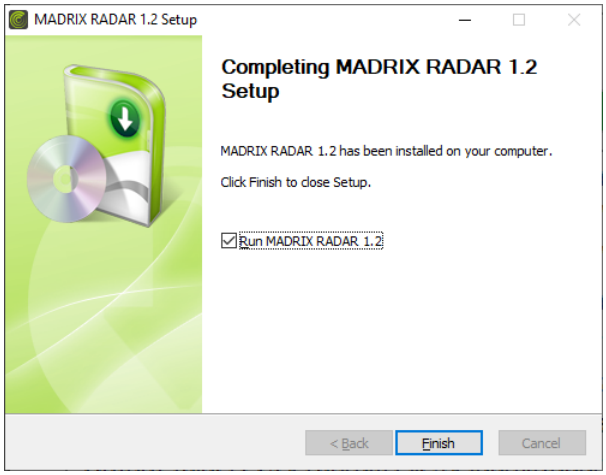


Step 6]

- The installation process may take a few minutes.



- ***Installation Complete -*** Click ***Next*** when this message shown.



Step 7]

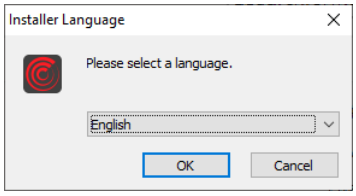
- ***Run MADRIX RADAR -*** Deselect if you do not wish to start the software now.

- ***Finish -*** Click to quit the setup.

- When starting MADRIX RADAR for the first time, please make sure to learn more about working with Windows.

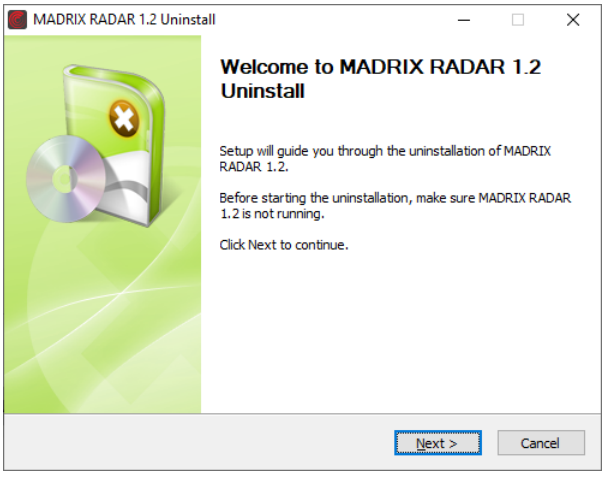
Learn more »Tips [Microsoft Windows / Networks / USB]

Uninstallation



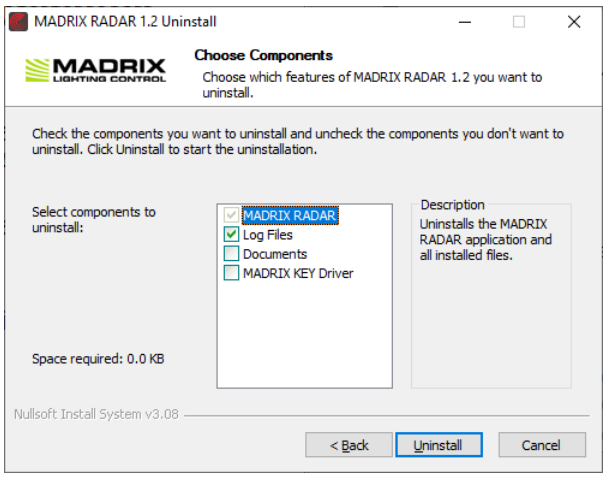
Step 1]

- Please select your preferred language and confirm with ***OK***
- You can always quit the uninstaller by choosing ***Cancel***
- Click ***Back*** in order to return to a previous step during the process.



Step 1]

- Click ***Next*** to start the uninstallation.



Step 2]

- This window allows you to select which components and which drivers you want to uninstall. A description is given for each item.

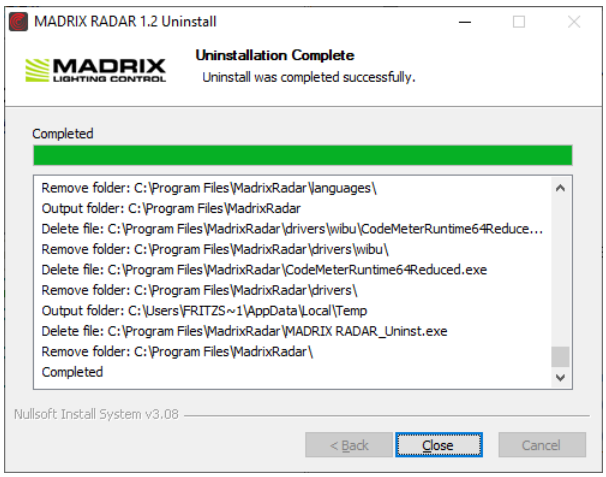
- ***MADRIX RADAR*** **-** Is a required component. It refers to the MADRIX RADAR Software.

- ***Log Files*** **-** Select if you wish to remove all files saved for logging. By default, the component is selected.

- ***Documents*** **-** Select if you wish to remove the Documents folder specific to this software from the My Documents directory; except log files. By default, the component is not selected.

- ***MADRIX KEY Driver*** **-** Select if you wish to uninstall the drivers of the MADRIX KEY. By default, the component is not selected.
  [**Only remove it if no other software, such as MADRIX 5, requires the driver. If you have such software installed and are using it, do not remove the driver.**]

- ***Uninstall*** **-** Click Uninstall after choosing the components in order to continue.



Step 3]

- The uninstallation process may take a short while.
- ***Uninstallation Complete*** **-** Click ***Close*** when this message shown.

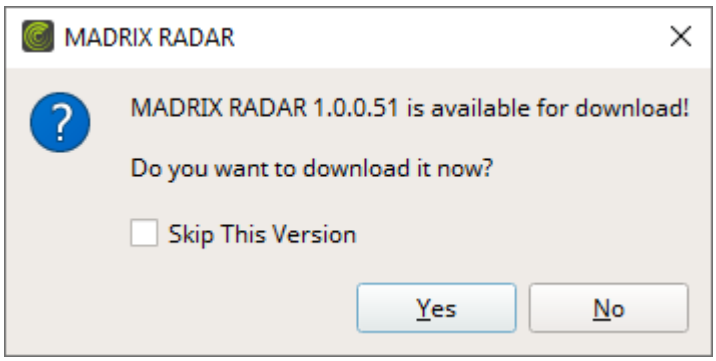
Software Update

Checking For New Software Versions

It is always recommended to run the latest software version. MADRIX RADAR automatically searches for updates at startup.

- By default, the option is enabled. To change it, select the menu ***Preferences > Options... > Startup > Check For Software Updates***

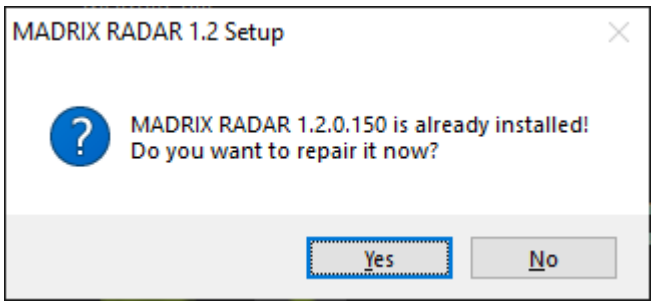
- Choose ***Skip This Version*** if you would like to skip a particular version.



Installing New Software Versions

When a new software version has been released, please update your current MADRIX RADAR installation to the newest version.

- Check and download the latest MADRIX RADAR Software as described above.
- You can also directly download it from »www.madrix.com
- It is not required to deinstall MADRIX RADAR before you install a new software version.
- Instead, follow the process described under Downloading The Software Online
- The installer will ask you if you would like to update your current MADRIX RADAR Software installation. Confirm with ***Yes***



2.2 Starting The Software

This topic includes:

Introduction

You can start MADRIX RADAR in different ways. Among those, the Windows Start Menu is the standard way to launch applications under the Windows operating system.

Desktop Shortcut

- ***Left Mouse Double-Click -*** Perform a double-click with your left mouse button on the desktop shortcut in order to start the MADRIX RADAR Software.

  - It is required that the shortcut has been manually placed on the Desktop or was automatically installed during the »Installation Process

Windows Start Menu

- In Windows, go to ***Start > MADRIX RADAR > MADRIX RADAR***
  - The MADRIX RADAR Software will start.

In addition, the Start Menu contains the following main items:

- ***Help MADRIX RADAR***
- ***MADRIX RADAR Quick Support***

2.3 PC Power Management

This topic includes:

Why Is Power Management Important?

We strongly recommend to deactivate all power saving options in Microsoft Windows in order to ensure an interruption-free operation of MADRIX RADAR. Otherwise, normal operation is likely to be interrupted.

Microsoft Windows operating systems offer a wide variety of power management options. In most cases, laptops, notebooks, and netbooks benefit from a longer battery life if a good power management is in use. But certain problems might occur because of computer power savings nevertheless:

- After a while your MADRIX KEY cannot be identified by the software anymore, for example.

- MADRIX RADAR cannot collect data or information from RDM devices, thus it cannot properly function, when the computer is in standby mode.

Usage

Make sure to set up power-saving settings especially if you are using:

- A MADRIX KEY [USB dongle].
- A notebook/laptop to run MADRIX RADAR.

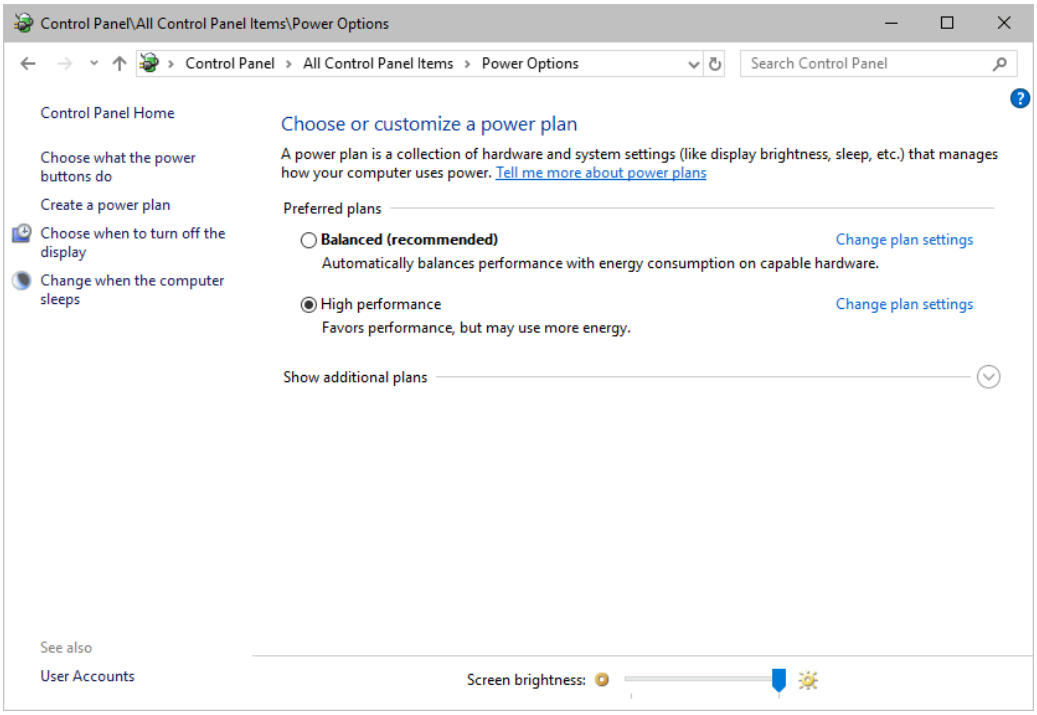
Additionally:

- Make sure to change the USB power settings.
- Especially for notebooks, we recommend to activate the High performance power plan.

Activate High Performance

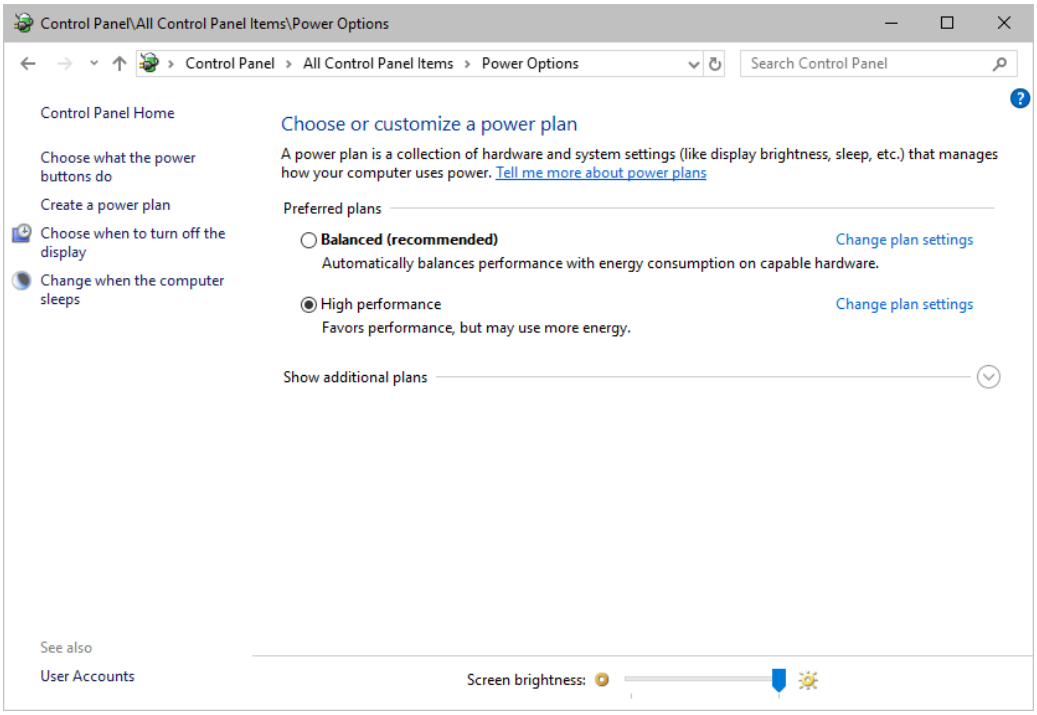
This setting will make sure that your notebook or laptop will have all its potential performance available for MADRIX RADAR.

- In Windows 10, select ***Start > Windows System > Control Panel > Power Options***, and change the power plan to ***High performance***
  [You might need to click on ***Show additional plans***].

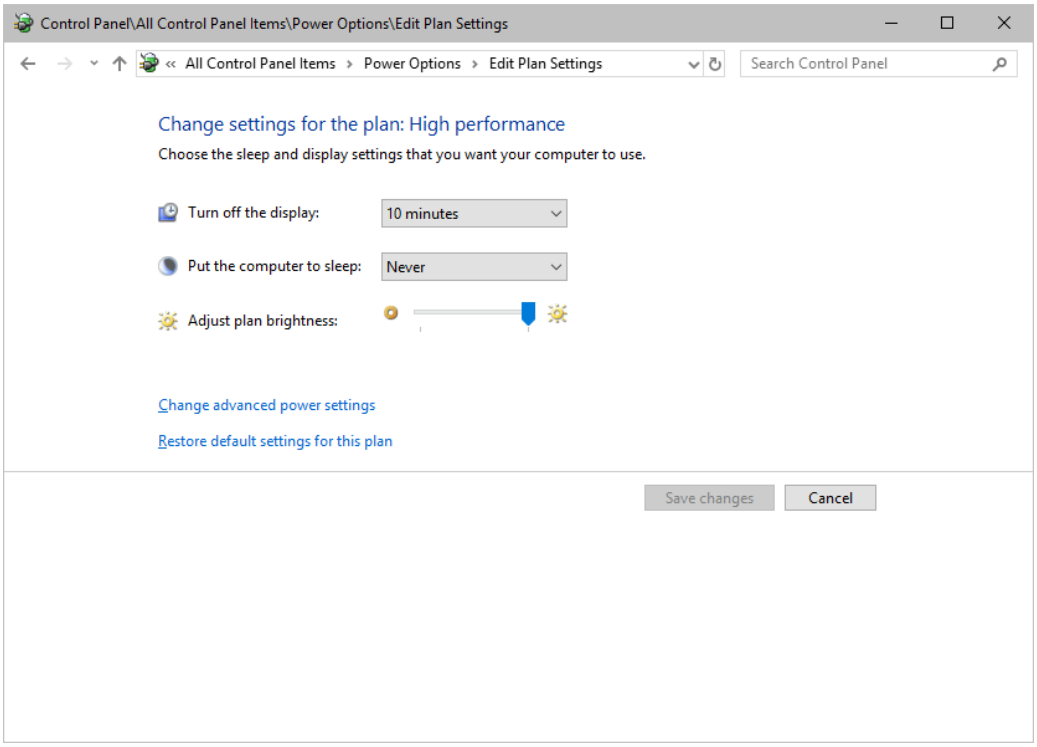


How To Change USB Power Settings

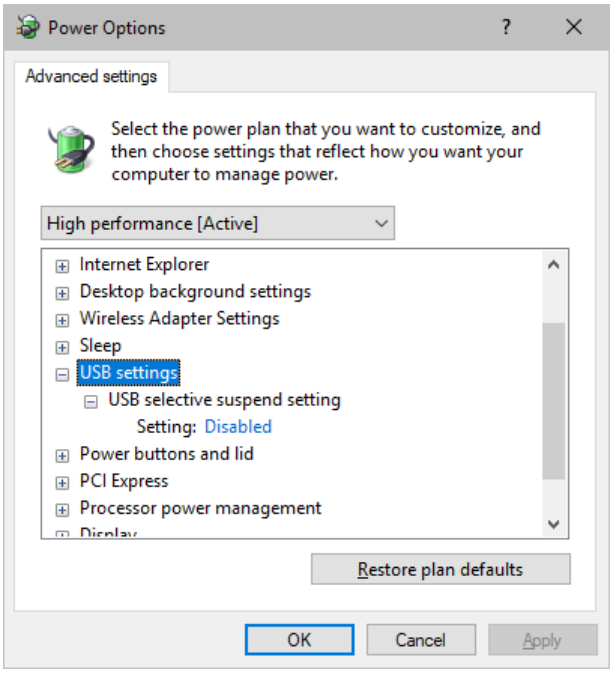
- In Windows 10, select ***Start > Windows System > Control Panel > Power Options > Change plan settings***



- Click ***Change advanced power settings***



- Especially the ***USB settings*** are important. Disable the suspend settings!



- Change any other settings that might interrupt the operation as required.

2.4 Tips [Microsoft Windows / Networks / USB]

This topic includes:

- **USB**
- **Working With TCP/IP Networks**
- **Changing The Priority Of Network Adapters**
- **Operating System Security**
- **Up-To-Date Drivers**
- **Monitoring Computer Performance**

USB

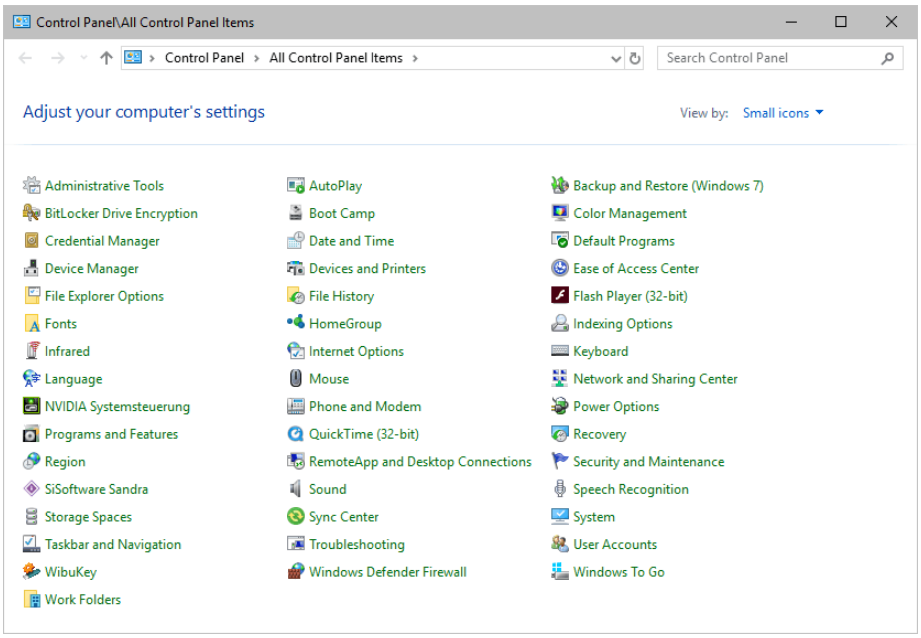
Among others, USB is an important way to work with MADRIX RADAR, MADRIX KEYs, etc. In order to ensure a stable work environment, we highly recommend setting up corresponding USB settings in Windows.
Learn more »**PC Power Management**

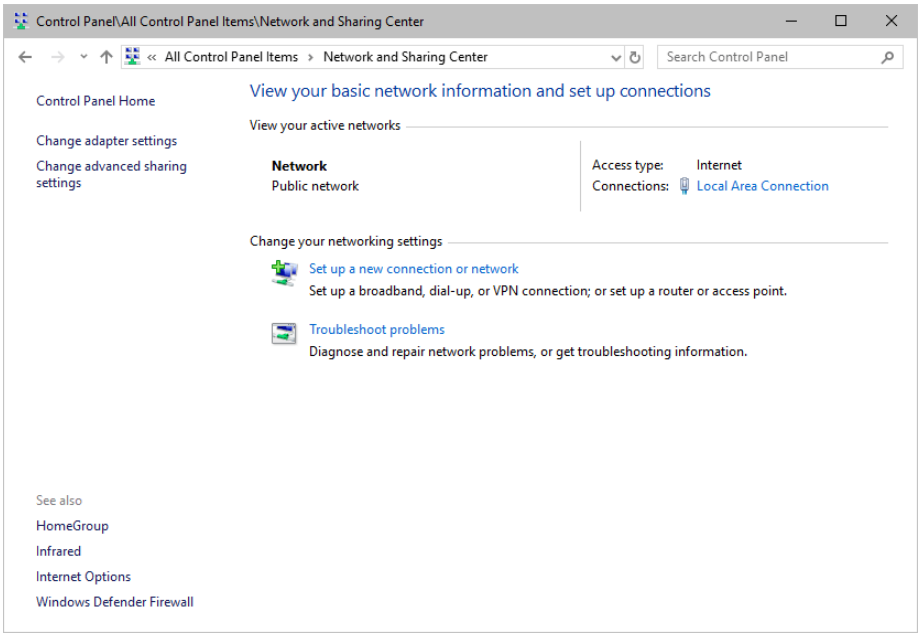
Working With TCP/IP Networks

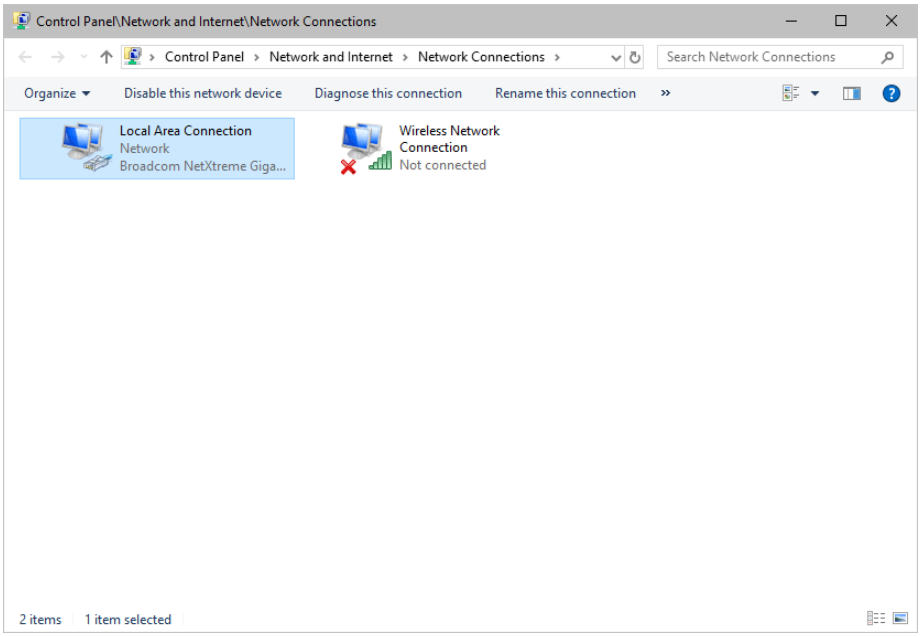
Configuration Of Network Settings

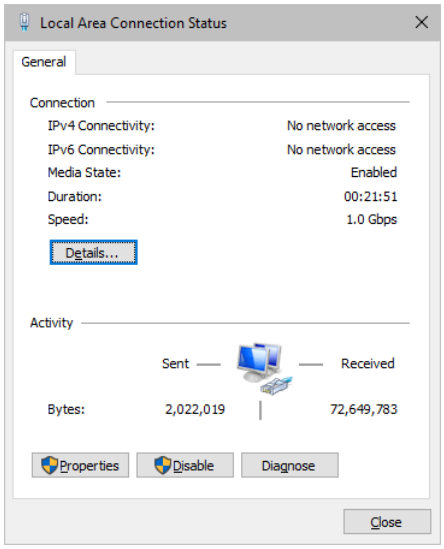
When working with network-based products and MADRIX RADAR [that is, Art-Net], you will have to set up the IP address of your network card in Windows. Learn how to set it up here.

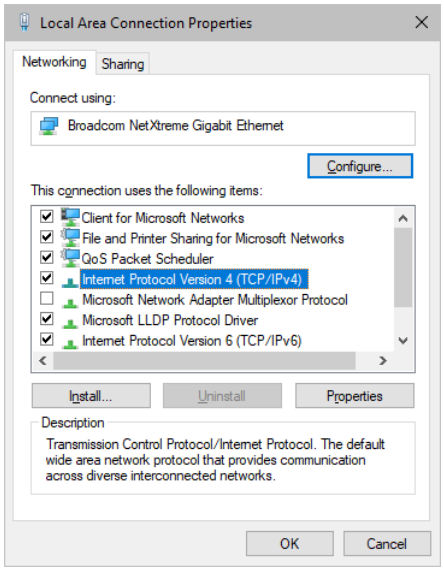
- In Windows 10, go to ***Start > Windows System > Control Panel > Network and Sharing Center > Change adapter settings > Local Area Connection > Properties > Internet Protocol Version 4 (TCP/IPv4) > Properties***

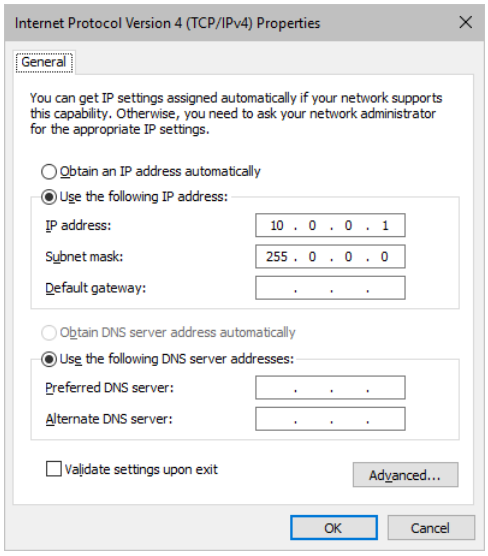



Control Panel\All Control Panel Items\Network and Sharing Center
All Control Panel Items › Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
View your active networks
Network
Public network
Access type: Internet
Connections: Local Area Connection
Change your networking settings
Set up a new connection or network
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.
Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.
See also
HomeGroup
Infrared
Internet Options
Windows Defender Firewall


Control Panel\Network and Internet\Network Connections
Control Panel › Network and Internet › Network Connections
Search Network Connections
Organize
Disable this network device
Diagnose this connection
Rename this connection
Local Area Connection
Network
Broadcom NetXtreme Giga...
Wireless Network Connection
Not connected
2 items
1 item selected


Local Area Connection Status
General
Connection
IPv4 Connectivity: No network access
IPv6 Connectivity: No network access
Media State: Enabled
Duration: 00:21:51
Speed: 1.0 Gbps
Details...
Activity
Sent
Received
Bytes: 2,022,019 72,649,783
Properties
Disable
Diagnose
Close


Local Area Connection Properties
Networking
Sharing
Connect using:
Broadcom NetXtreme Gigabit Ethernet
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
Internet Protocol Version 4 (TCP/IPv4)
Microsoft Network Adapter Multiplexor Protocol
Microsoft LLDP Protocol Driver
Internet Protocol Version 6 (TCP/IPv6)
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
OK
Cancel



Set up the following settings:

- Enable ***Use the following IP address:***
- ***IP address -*** Sets the IP address for this computer and this network card.

  - If you have several network cars in your computer, you can set up an individual address for each network card.

  - An IP address has 4 parts. Enter the complete address as explained in the specific chapter of this user guide [e.g., 10.0.0.1].

  - You only have to enter the numbers.
- ***Subnet mask -*** Sets up the Subnet mask for this computer.

  - This is an important part of the network settings, just as the IP address.

  - A Subnet mask has 4 parts. Enter the complete address as explained in the specific chapter of this user guide [e.g., 255.0.0.0].

  - You only have to enter the numbers.
- ***OK -*** Click to save your settings.

  - [Make also sure to close the ***Local Area Connection Settings*** with ***OK*** and close the ***Local Area Connection Status*** window with ***Close***.]
- Restart the MADRIX RADAR Software if you have changed any network settings!

Learn more below.

Using Several Devices In A Network

Usually, you will use at least 2 devices in a network [for example, 1 MADRIX RADAR PC and 1 Art-Net node]. As explained above, you will need to configure various network settings not only for your MADRIX PC but also for the other devices.

To be able to communicate with each other, all devices have to be in 'the same network'. That means:

- All devices need to be physically connected with each other [through network equipment, such as hubs or switch and/or network cables]
- All devices need to have compatible network settings

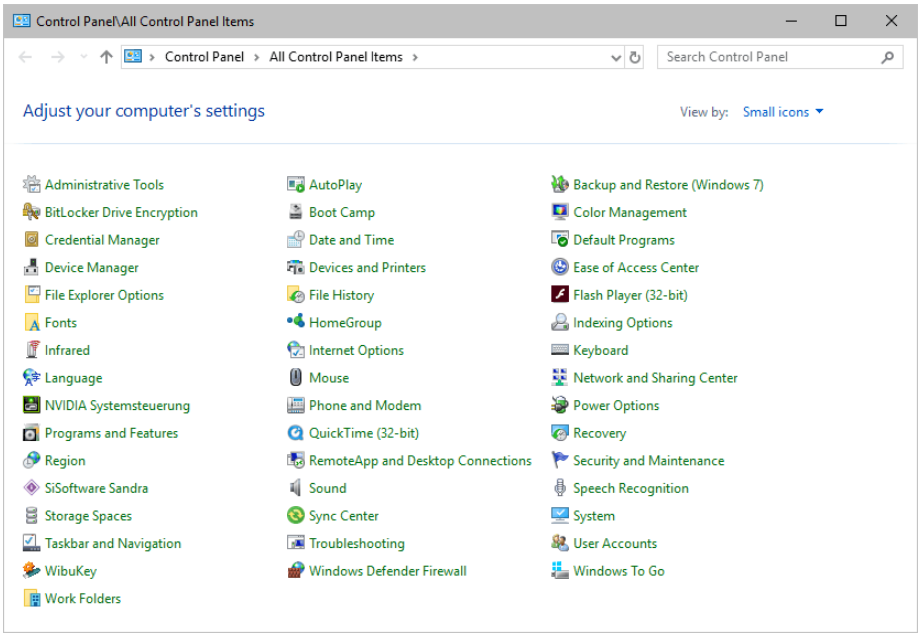
Using several devices in a network does not mean that all should have the same IP address. That will not work!
Instead, follow these rules:

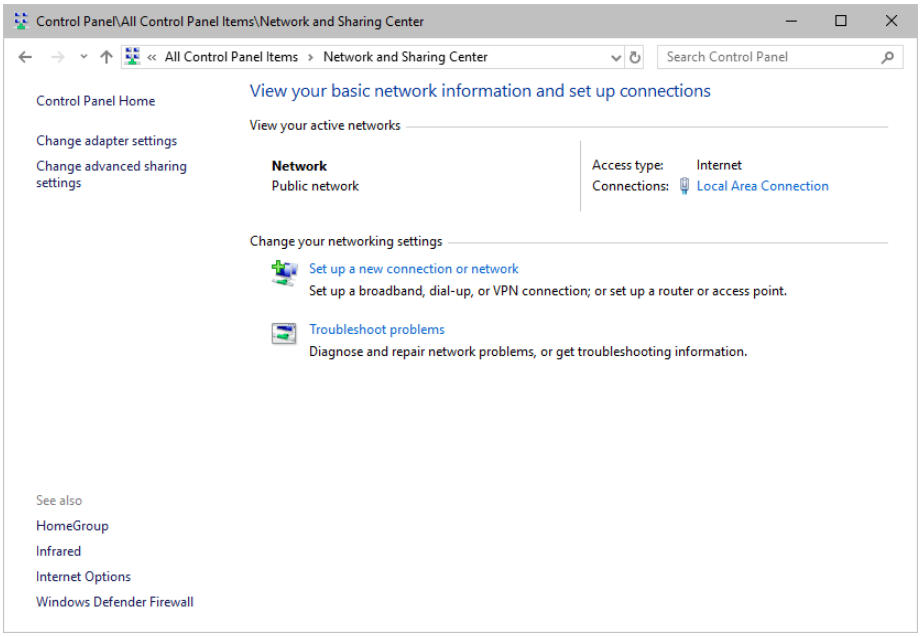
- **Set up all devices within the same IP address range, but never with the same IP address [for example, MADRIX PC: 10.204.226.101 and Art-Net node: 10.204.226.102]**
- **Set up all devices with the same Subnet mask e.g., 255.0.0.0]**
- **If recommended, set up all devices with the same Default gateway [e.g., 10.0.0.1]**

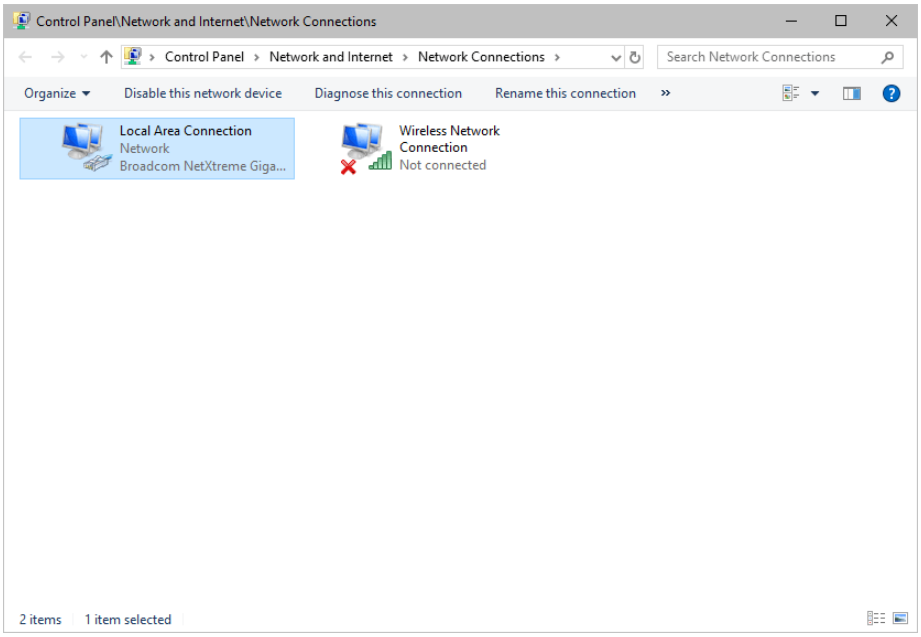
Changing The Priority Of Network Adapters

You can change the order in which Windows and MADRIX RADAR accesses your network adapters. By changing the order, you can specify which network adapter [network card] is used first and as the main connection.

- **1]**
  In Windows 10, go to ***Start > Windows System > Control Panel > Network and Sharing Center > Change adapter settings***

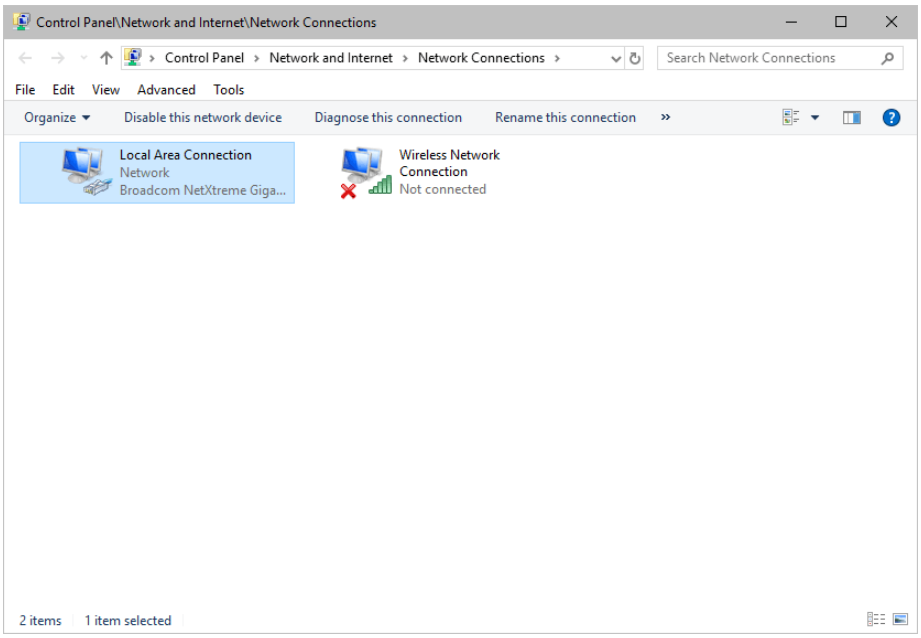

Control Panel\All Control Panel Items
Control Panel › All Control Panel Items ›
Search Control Panel
Adjust your computer's settings
View by: Small icons
Administrative Tools
AutoPlay
Backup and Restore (Windows 7)
BitLocker Drive Encryption
Boot Camp
Color Management
Credential Manager
Date and Time
Default Programs
Device Manager
Devices and Printers
Ease of Access Center
File Explorer Options
File History
Flash Player (32-bit)
Fonts
HomeGroup
Indexing Options
Infrared
Internet Options
Keyboard
Language
Mouse
Network and Sharing Center
NVIDIA Systemsteuerung
Phone and Modem
Power Options
Programs and Features
QuickTime (32-bit)
Recovery
Region
RemoteApp and Desktop Connections
Security and Maintenance
SiSoftware Sandra
Sound
Speech Recognition
Storage Spaces
Sync Center
System
Taskbar and Navigation
Troubleshooting
User Accounts
WibuKey
Windows Defender Firewall
Windows To Go
Work Folders


Control Panel\All Control Panel Items\Network and Sharing Center
« All Control Panel Items › Network and Sharing Center
Search Control Panel
Control Panel Home
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
View your active networks
Network
Public network
Access type: Internet
Connections: Local Area Connection
Change your networking settings
Set up a new connection or network
Set up a broadband, dial-up, or VPN connection; or set up a router or access point.
Troubleshoot problems
Diagnose and repair network problems, or get troubleshooting information.
See also
HomeGroup
Infrared
Internet Options
Windows Defender Firewall



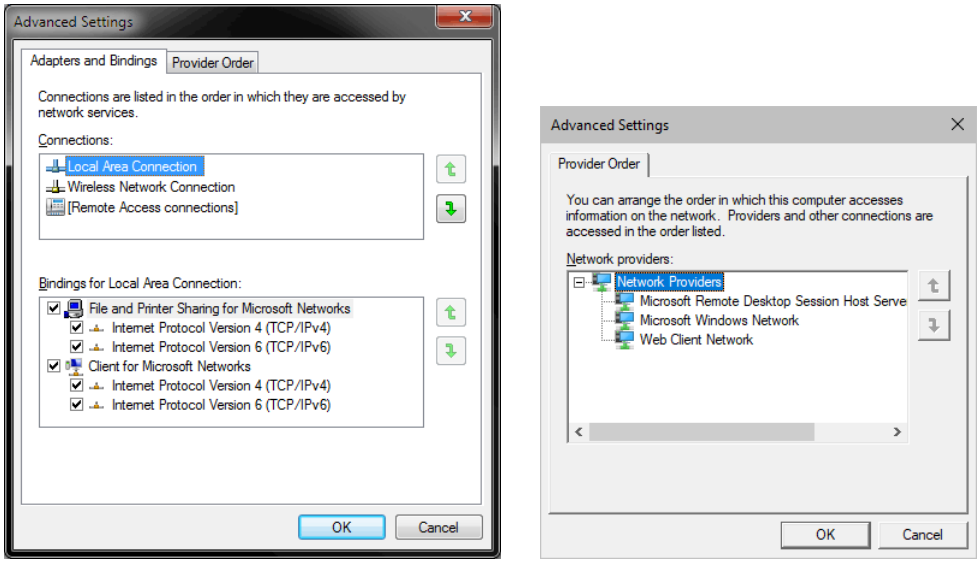
- **2]** Press ***Alt*** on your keyboard.

  - A menu appears at the top, which is otherwise hidden.



- **3]** Go to ***Advanced > Advanced Settings...***

  - A new window opens.



- **4]** Select your preferred network connection[s] in the list of ***Connections:***
- **5]** Change the order by clicking on the ***green up and down arrow buttons*** on the right hand side.
  - The connection which is listed on top, is the first and prioritized adapter.
- **6]** Click OK to confirm.
- **7]** Restart your computer.

Operating System Security

It is recommended

- to keep Windows up-to-date by installing security updates using ***Windows Update***
- to use a virus detection software when working with files from external sources.

Up-To-Date Drivers

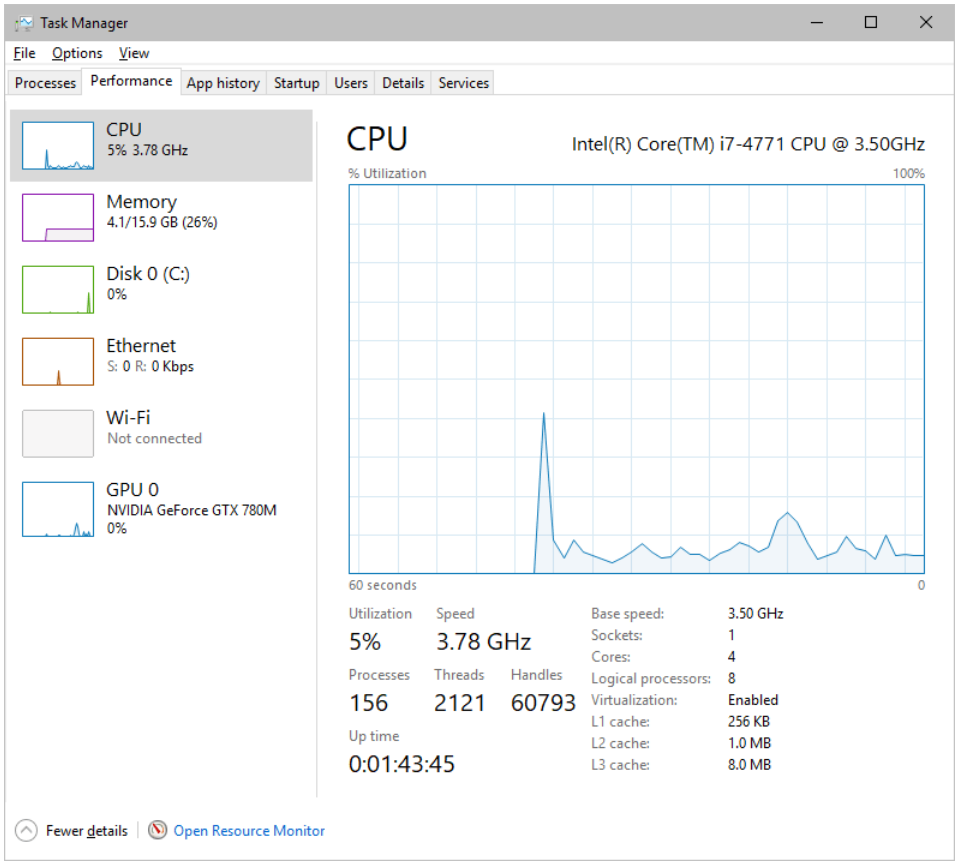
Please always keep all component drivers up to date by installing the latest available driver. Among others, this may include drivers for:

- Processor
- Graphics Card
- USB

Monitoring Computer Performance

Windows allows you to monitor the overall performance of your computer.

- Press ***Ctrl + Alt + Del*** and choose ***Start Task Manager***
  [German shortcut: Strg + Alt + Entf]
- A new window opens [Task Manager].
- Go to ***Performance***



- You can now monitor the ***CPU Usage*** as well as the ***Memory*** usage.

MADRIX
LIGHTING CONTROL

//PART 3

Technical Standards

3 Technical Standards

This topic includes:

Introduction

Learn in this chapter more about the technical standards that MADRIX RADAR is using.

Topics Of This Chapter

3.1 RDM [Remote Device Management]

This topic includes:

Introduction

Remote Device Management is a technical standard that enables the base features of MADRIX RADAR thanks to the bi-directional communication it defines between controllers, hardware interfaces, and devices. MADRIX RADAR uses RDM over Art-Net. This data tunnel is referenced as the ArtRdm subcategory within Art-Net.

Overview

- MADRIX RADAR [software version 1.2.] supports:
  - **ANSI E1.20 – 2010**
  - **ANSI E1.37-1 – 2012**

- The standard is defined as ANSI E1.20 - 2010, Entertainment Technology - RDM - Remote Device Management Over DMX512 Networks.
- The standard is defined as ANSI E1.37-1-2012, Additional Message Sets for ANSI E1.20 (RDM) – Part 1, Dimmer Message Sets.
- It has been published by PLASA North America.
- It has been approved as an American National Standard by the ANSI Board of Standards.

3.2 Art-Net [DMX Over Ethernet]

This topic includes:

Introduction

Art-Net is a communication protocol that allows to distribute DMX512 data over TCP/IP networks [DMX over Ethernet].

Overview

- MADRIX RADAR [software version 1.2.] supports:
  - **Art-Net I**
  - **Art-Net II**
  - **Art-Net 3**
  - **Art-Net 4**

- Art-Net has been invented by Artistic Licence and has been published into the public domain.
- MADRIX RADAR supports specific Art-Net functionality in order to communicate with hardware interfaces [such as, ArtPoll Reply].
  - ArtPoll and ArtPoll Reply are protocol-specific mechanisms to establish a connection between sender and receiver and exchange interface information.
  - MADRIX RADAR, among other packets, uses the ArtRdm packet for RDM over Art-Net.

MADRIX
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//PART 4

User Interface [GUI]

4 User Interface [GUI]

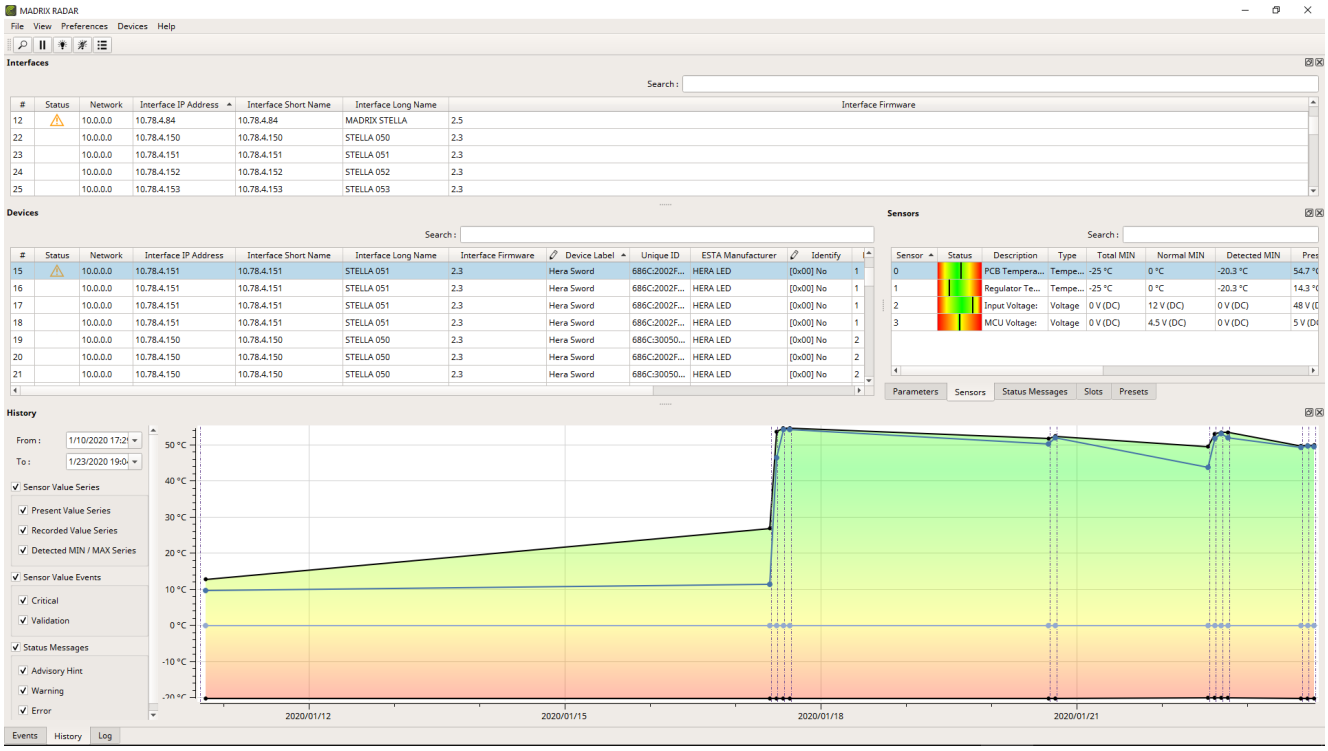
This topic includes:

Introduction

The user interface is what you see of the software.

You will immediately see it when starting MADRIX RADAR for the first time. This graphical user interface [abbr.: GUI] provides visual feedback, controls, and information for you.

Overview



Topics Of This Chapter

- »**Menu**

  This topic introduces the menu bar of the software found at the top of the screen.

- »**Toolbar**

  The optional toolbar provides quick access to common actions.

- »**Customization**

  MADRIX RADAR provides ways on how to set up the software's user interface according to individual preferences.

- »**Tooltips**

  Additional information is readily available if wanted.

4.1 Menu

This topic includes:

Introduction

The main menu of this software is located at the top of the MADRIX RADAR window.

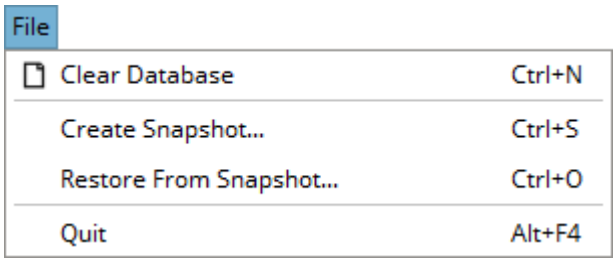
Extra Information Displayed

Ctrl + N - This represents a keyboard shortcut that will perform the action directly rather than using the menu.

... - Indicates that a new window will open on top of the main MADRIX RADAR window.

> - Indicates that this entry has sub-entries.

File Menu



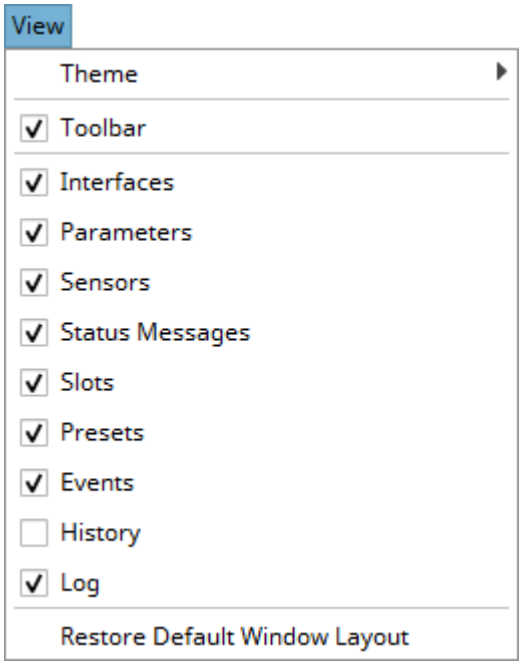
- ***Clear Database* -** Removes all devices [from the main list] and starts a completely new session.
  Attention: This also deletes the entire content of the database of collected or recorded device data. All of its entries and contents will thus be erased.

- ***Create Snapshot... -*** Creates a snapshot of all devices and their current settings. Learn more »**Snapshots**
- ***Restore From Snapshot* -** Loads a snapshot in order to restore the settings of all devices to this previous point in time. Learn more »**Snapshots**

- ***Quit* -** Closes the software.

View Menu

Refers to how the user interface looks.



- ***Theme > Light -*** Activates the user interface theme that is light in color.
- ***Theme > Dark -*** Activates the user interface theme that is darker in color.

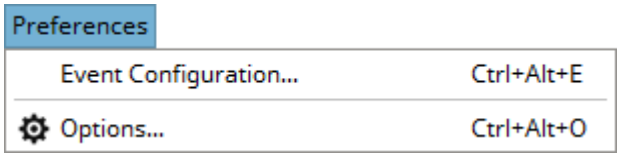
- ***Toolbar -*** Shows or hides the Toolbar for quick access. Learn more »**Toolbar**

- ***Interfaces -*** Shows or hides the separate Interfaces view. Learn more »**Interfaces**
- ***Parameters -*** Shows or hides the separate Parameters view. Learn more »**Parameters**
- ***Sensors -*** Shows or hides the separate Sensors view. Learn more »**Sensors**
- ***Status Messages -*** Shows or hides the separate Status Messages view. Learn more »**Status Messages**
- ***Slots -*** Shows or hides the separate Slots view. Learn more »**Slots**
- ***Presets -*** Shows or hides the separate Presets view. Learn more »**Presets**
- ***Events -*** Shows or hides the separate Events view. Learn more »**Events**
- ***History -*** Shows or hides the separate History view. Learn more »**History**
  [Requires the MADRIX RADAR big data license and is deactivated if this license is not available.]
- ***Log -*** Shows or hides the separate Log view. Learn more »**Log**

- ***Restore Default Window Layout -*** Applies the default settings for the graphical user interface, including sizes and layout. As such, it resets any changes in size you made to the software window.

Preferences Menu

These settings remain valid and set beyond any restart of the software.



- ***Event Configuration... -*** Allows you customize the notifications presented or sent by the software when an event occurs. Learn more »**Events**

- ***Options ... -*** Allows you to configure various important settings for the software. Learn more »**Options**

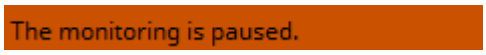
Devices Menu

Refers to tools that allow configuration of devices or communication with them in the network.

- ***Discover Devices -*** Scans for all available Art-Net hardware interfaces in the network in order to find and add them to the main list of devices [by sending an ArtPoll and the ArtPoll Reply functionality] as well as connected RDM devices.

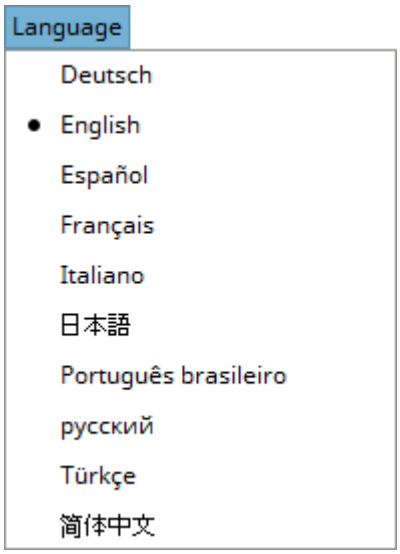
Learn more »**Art-Net [DMX Over Ethernet]**

- ***Pause Monitoring* -** Deactivates the automatically generated RDM queries in order to temporarily halt monitoring.
  - As a result, this also reduces network traffic and load.
  - A corresponding in-app notification will show you this status change [which is displayed at the bottom of the main window].

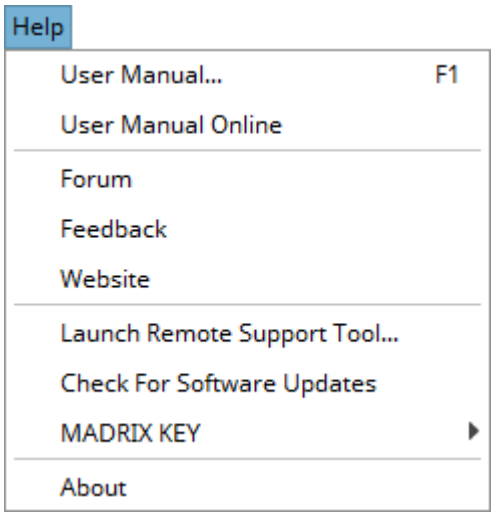
- ***Patch Editor... -*** Opens the patching tool to quickly address your RDM devices [such as lighting fixtures]. Learn more »**Patch Editor**
- ***Identify All Devices (Set:IdentifyDevice) -*** Sends the Set:IdentifyDevice command On to all devices to quickly enable this mode on all devices.
- ***Stop Identifying All Devices (Set:IdentifyDevice) -*** Sends the Set:IdentifyDevice command Off to all devices to quickly disable this mode on all devices.

Language Menu



- ***Deutsch -*** Activates the ***German*** language for the software user interface.
- ***English -*** Activates the ***English*** language for the software user interface.
- ***Español -*** Activates the ***Spanish*** language for the software user interface.
- ***Français -*** Activates the ***French*** language for the software user interface.
- ***Italiano -*** Activates the ***Italian*** language for the software user interface.
- ***日本語 -*** Activates the ***Japanese*** language for the software user interface.
- ***Português brasileiro -*** Activates the ***Brazilian Portuguese*** language for the software user interface.
- ***русский -*** Activates the ***Russian*** language for the software user interface.
- ***Türkçe -*** Activates the ***Turkish*** language for the software user interface.
- ***简体中文 -*** Activates the ***Simplified Chinese*** language for the software user interface.

Help Menu



- ***User Manual... -*** Opens this user guide, locally on your computer using your default web browser.
- ***User Manual Online -*** Opens this user guide online by calling up a website using your default web browser. This requires an internet connection.

- ***Forum -*** Is an online link that will take you to the MADRIX Online Forum, where users and developers can exchange ideas about MADRIX RADAR. This requires an internet connection.
- ***Feedback*** - Is an online link that will open your web browser with the MADRIX Contact Form. If you wish, please enter your comments into the form and send it to us. Thank you! This requires an internet connection.
- ***Website -*** Is an online link for the MADRIX website »**www.madrix.com**. This requires an internet connection.

- ***Launch Remote Support Tool... -*** Opens the external support tool provided with MADRIX RADAR. This requires an internet connection. MADRIX technical support team may request that you launch this tool for further assistance.
- ***Check For Software Updates... -*** Checks online if a software update is available for downloading. This requires an internet connection.

- ***MADRIX KEY > Activate MADRIX KEY... -*** Allows you activate the MADRIX KEY.
  Learn more »**License System**
- ***MADRIX KEY > Update MADRIX KEY Firmware... -*** Allows you to update the firmware of your MADRIX KEY.

- ***License... -*** Opens the ***About*** window to show the MADRIX KEY and its MADRIX RADAR Licenses.

- ***About -*** Provides information about MADRIX RADAR, the MADRIX KEY you might own, and legal information.

4.2 Toolbar

This topic includes:

Introduction

The toolbar includes quick and direct access to commonly used features and functionality.

You can choose to show or hide it via menu ***View > Toolbar***

Overview

Discover Devices - Re-scans for all Art-Net devices in the network [menu ***Devices > Discover Devices***].

Pause Monitoring - Stops sending out RDM queries [menu ***Devices > Pause Monitoring***].

Identify All Devices - Activates the identification mode for all devices that are listed in the list of devices [menu ***Devices > Identify All Devices (Set:IdentifyDevice)***].

Stop Identifying All Devices - Deactivates the identification mode for all devices that are listed in the list of devices [menu ***Devices > Stop Identifying All Devices (Set:IdentifyDevice)***].

Patch Editor - Opens the window of the Patch Editor [menu ***Devices > Patch Editor...***].

Customization

The toolbar is located at the top of the application window by default.
Use drag & drop on the drag-handle with the help of your mouse to re-position it to the outer left, outer right, or bottom of the application window.

4.3 Customization

This topic includes:

Introduction

The user interface of the software can be customized to your preferences.

Restore Default Window Layout

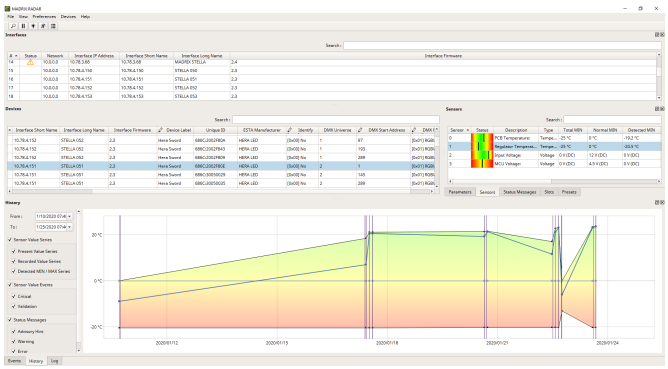
- Menu ***View > Restore Default Window Layout -*** Applies the default settings for the graphical user interface, including sizes and layout. As such, it resets any changes you made to the software window.

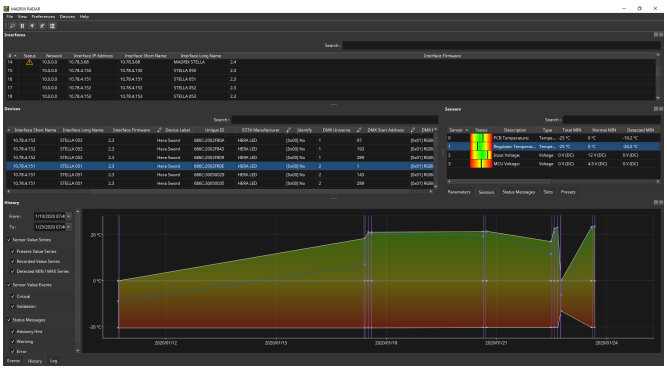
Themes

You can change the general appearance of the software.

- Menu ***Themes > Light -*** Activates the user interface theme that is light.
- Menu ***Themes > Dark -*** Activates the user interface theme that is darker.
- Learn more »**Menu**

Light Theme **Dark Theme**





Working With Lists

Overview

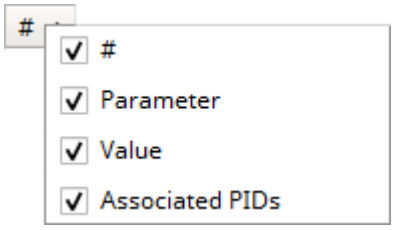
MADRIX RADAR mainly presents information in lists.

There are numerous options to adjust the views and the information presented to you.

Show Or Hide Columns

MADRIX RADAR allows you to choose which columns are presented in list views. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of a list.

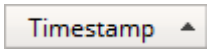


☑ ***Show Column -*** A checkmark means that this particular column is shown.

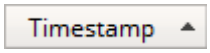
☐ ***Hide Column -*** No checkmark means that this particular column is hidden.

Sorting

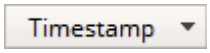
You can easily adjust how items are sorted in lists.



Click on a column header in order to sort the entire list accordingly.



Ascending Order - An up-arrow means that items are shown in ascending order.



Descending Order - A down-arrow means that items are shown in descending order.

Re-Arranging Columns

You can easily change the order of columns in lists.

- ***Left Mouse Click + Hold + Drag & Drop -*** Perform a click with your left mouse button on a column header, continue to hold it, and move the header to its new position on the list. Release the mouse button in order to let the column snap into its place.

Showing Or Hiding Views

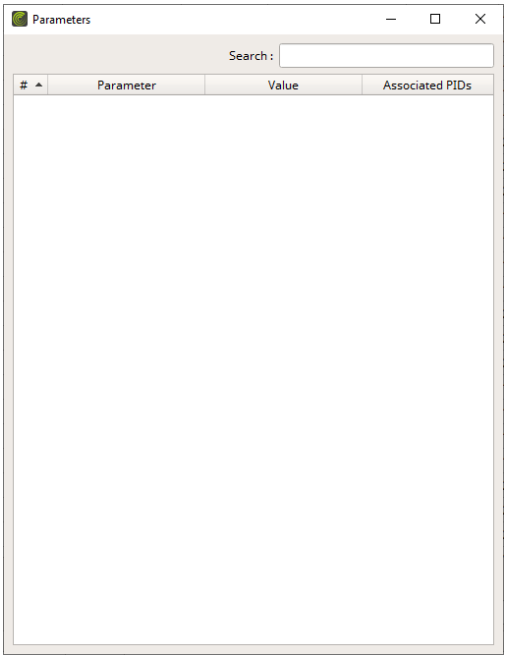
Undock View - Allows you to quickly undock a single view [in order to use it as separate window or to rearrange the GUI layout].

Close View - Allows you to quickly close a single view. Alternatively, you can use the menu ***View***.
Learn more »**Menu**

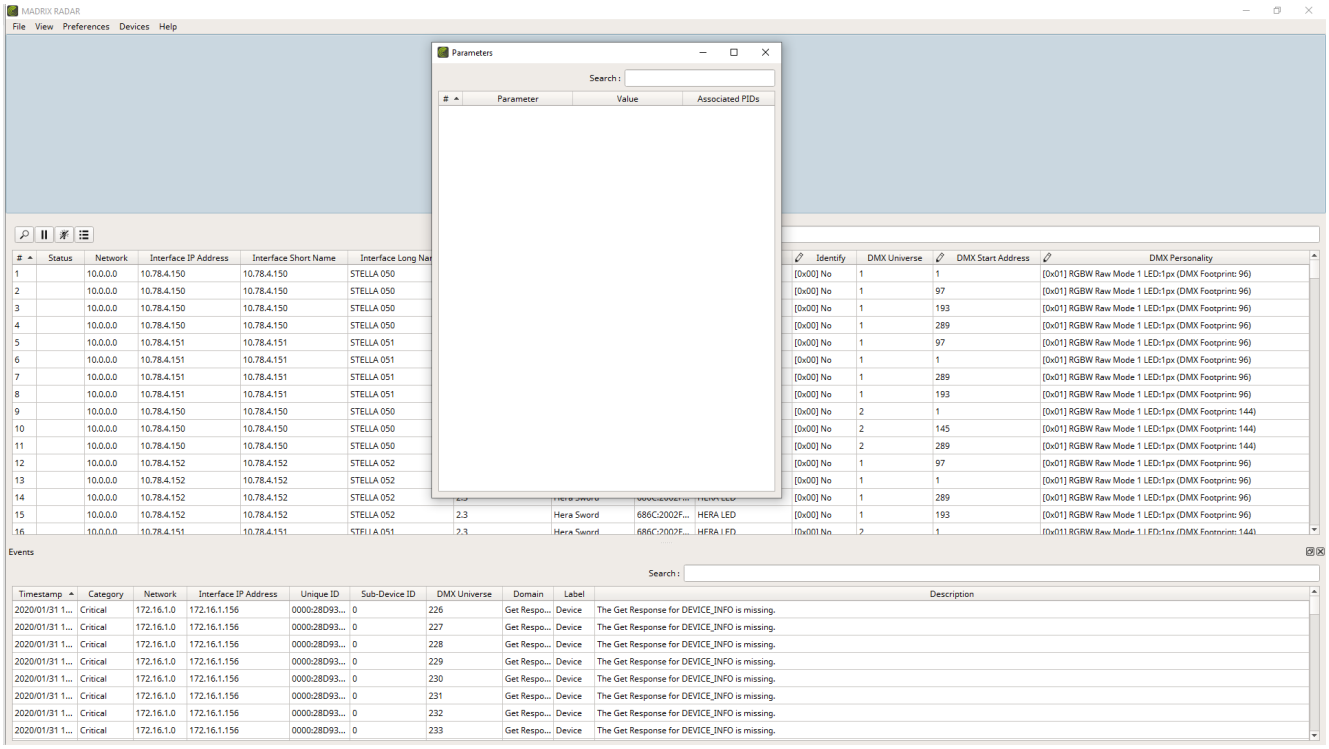
Re-Arranging The Layout

You can completely rearrange all views in the software.

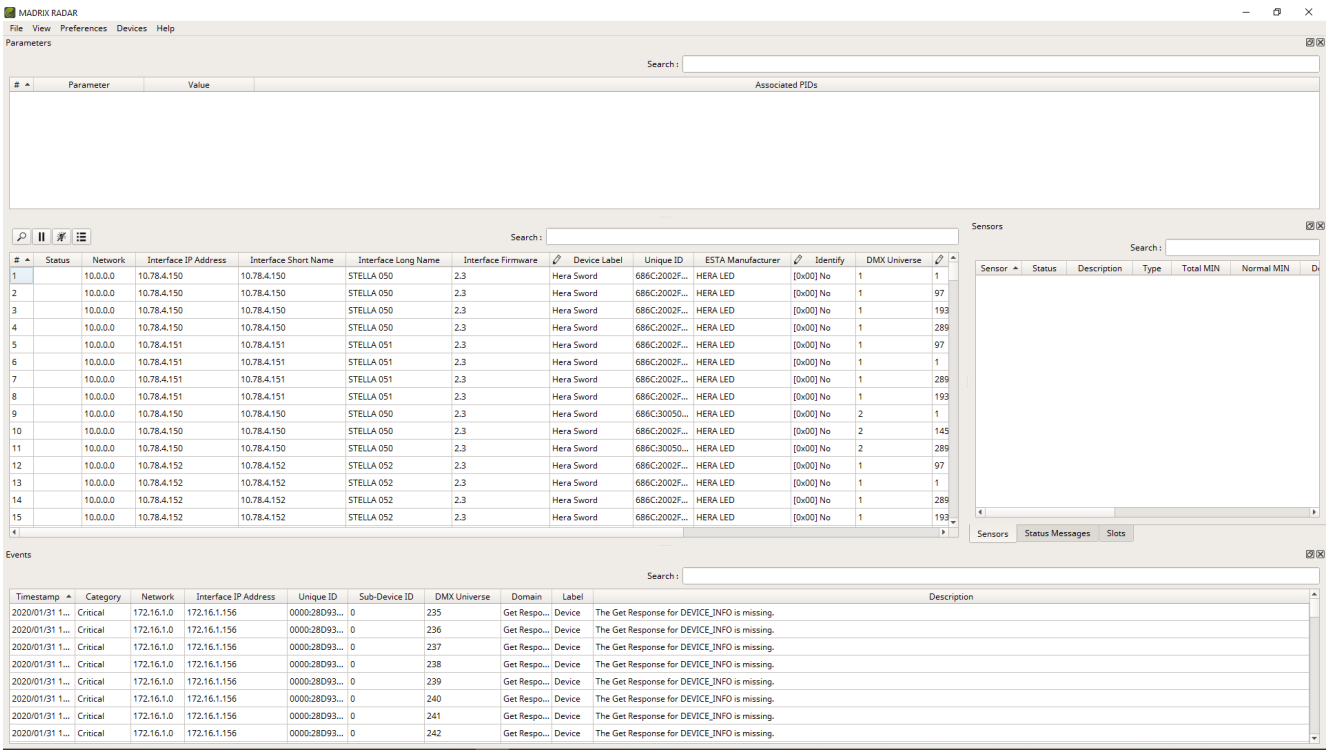
1] Undock a view.



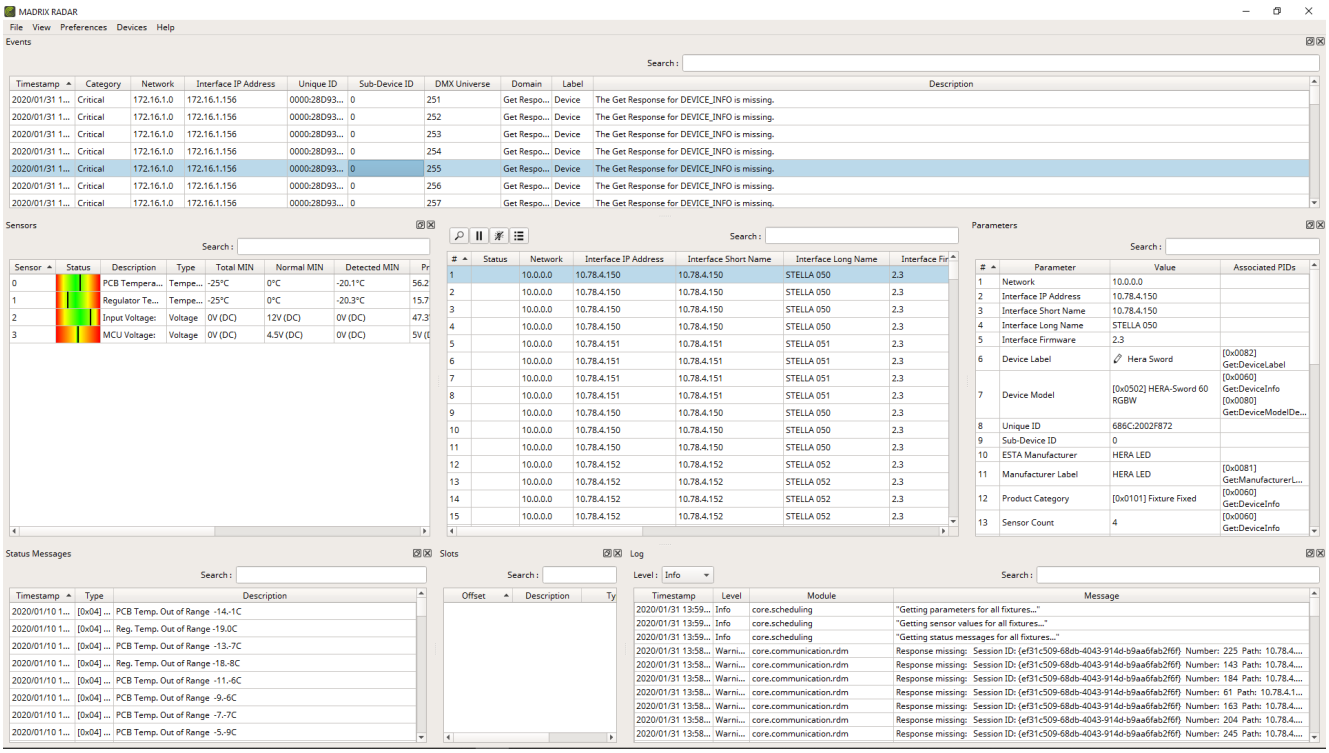
2] Perform a ***left mouse click + hold*** on the top bar of the new view window and drag the view into its designated place.



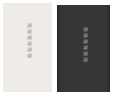
3] The view will snap into its new location.



4] A variety of locations is available to position views anew. [Vertically, three levels/rows are available.]



5] Use the drag-handle that is positioned between views to increase or decrease the width of views.



6] In addition, views can be positioned on top of another. Single views can also be shown on a different monitor, for example.

4.4 Tooltips

This topic includes:

- **Overview**

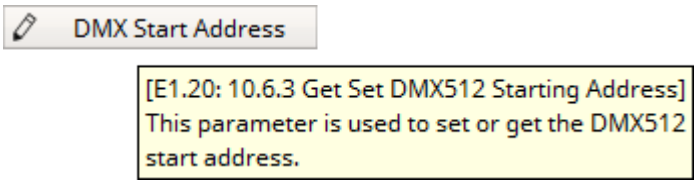
Overview

When hovering over a user-interface control of software, MADRIX RADAR will provide a so-called tooltip after a short while.

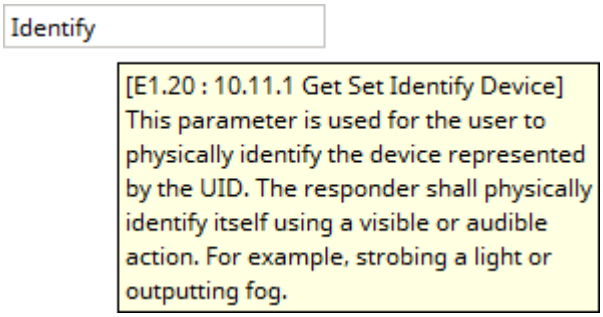
These informative messages can provide additional information about the user interface or even underlying technologies and standards, such as RDM and Art-Net.

You will find helpful information, especially regarding:

- Any column heading of the various lists in the software



- Table cells of the column Parameter of the Parameters view.



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//PART 5

Options

5 Options

This topic includes:

Introduction

You can set up general and more specific options for MADRIX RADAR.

To ensure optimal operation, we highly recommend to set up all options at first start according to your preferences and a project's requirements.

Topics Of This Chapter

MADRIX RADAR Options include the following topics:

5.1 Startup

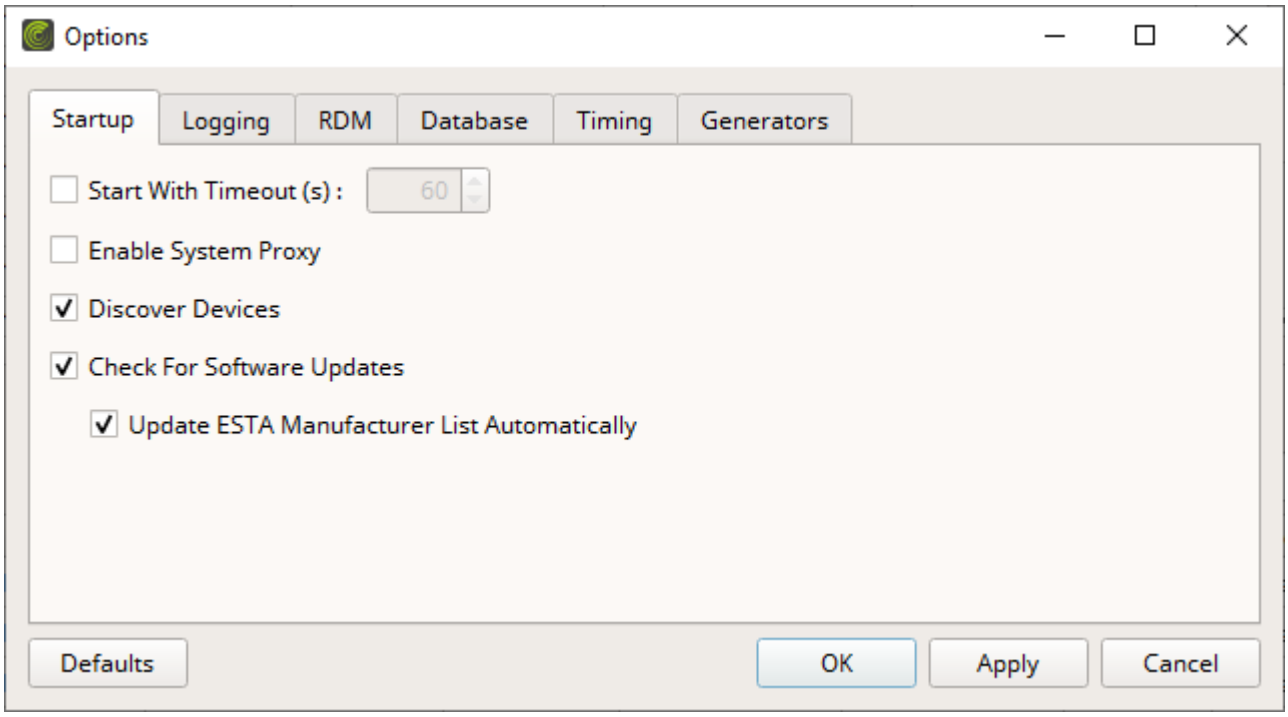
This topic includes:

- Notes

Overview

Software options include various settings regarding the MADRIX RADAR Software itself.

- Go to the menu ***Preferences > Options... > Startup***
  [Keyboard shortcut: ***Ctrl + Alt + O > Startup***]



- Set up the options as explained below.
- Restore the default settings via ***Defaults***.
- Confirm any changes with ***OK*** or ***Apply***. Discard any changes via ***Cancel***.

Options

- ***Start With Timeout (s) -*** Allows you to define the time the software waits in seconds [s] and delays the startup process. MADRIX RADAR will not fully start until the time has passed. Is useful when MADRIX RADAR is automatically started together with the operating system [that is, if MADRIX RADAR is a Startup App of Windows.]

  - This timeout is particularly useful when using network devices. The Windows operating system needs some time to initialize such devices first. But MADRIX RADAR might be already loaded completely and as a result may not detect the devices. This option prevents that and tries to ensure that devices are ready to be found before the software scans for them or tries to communicate with them.

  [This option is set to Off by default.]

  - A new loading window will appear before the software starts. It shows a countdown and 2 options:
  - ***Start Now -*** Start the software immediately.
  - ***Cancel Startup -*** Cancels the startup and MADRIX RADAR will not be launched.

- ***Enable System Proxy -*** Uses the system proxy.

  - A proxy is an optional intermediary for the client-server communication in a network.
  - If you have set up and are using a system-wide proxy in the Windows operating system, enable this option here in order to let MADRIX RADAR route its network data through it.
  - Leave this setting disabled, if you are not using a system proxy or are unsure.

  [This option is set to Off by default.]

- ***Discover Devices -*** Scans for devices [interfaces and RDM device] in the network automatically as soon as the software has been started [ArtPoll Reply].

  - It might be advisable to turn this setting off, once a project is fully configured and set up. Otherwise, the software scans for new devices every time the software is started [intentionally or unintentionally].

  [This option is set to On by default.]

- ***Check For Software Updates -*** Automatically searches for software updates. When a new update is available, a notification will be presented to you when starting the software. This requires an active internet connection.
  [This option is set to On by default.]
  - ***Update ESTA Manufacturer List Automatically -*** Is only available if Check For Updates is enabled. Automatically [and silently] updates the list of ESTA manufacturer IDs. This requires an active internet connection.
  - If set to Off and a new update is available, a notification will be presented to you when starting the software in order to choose downloading and updating the list.
  - The list is stored under C:\Users\USER\Documents\MADRIX RADAR\cache
  - You can manually check for updates using the menu ***Help > About > Check For Updates***.
  [This option is set to On by default.]

Notes

- All Startup options will be saved locally on your computer.

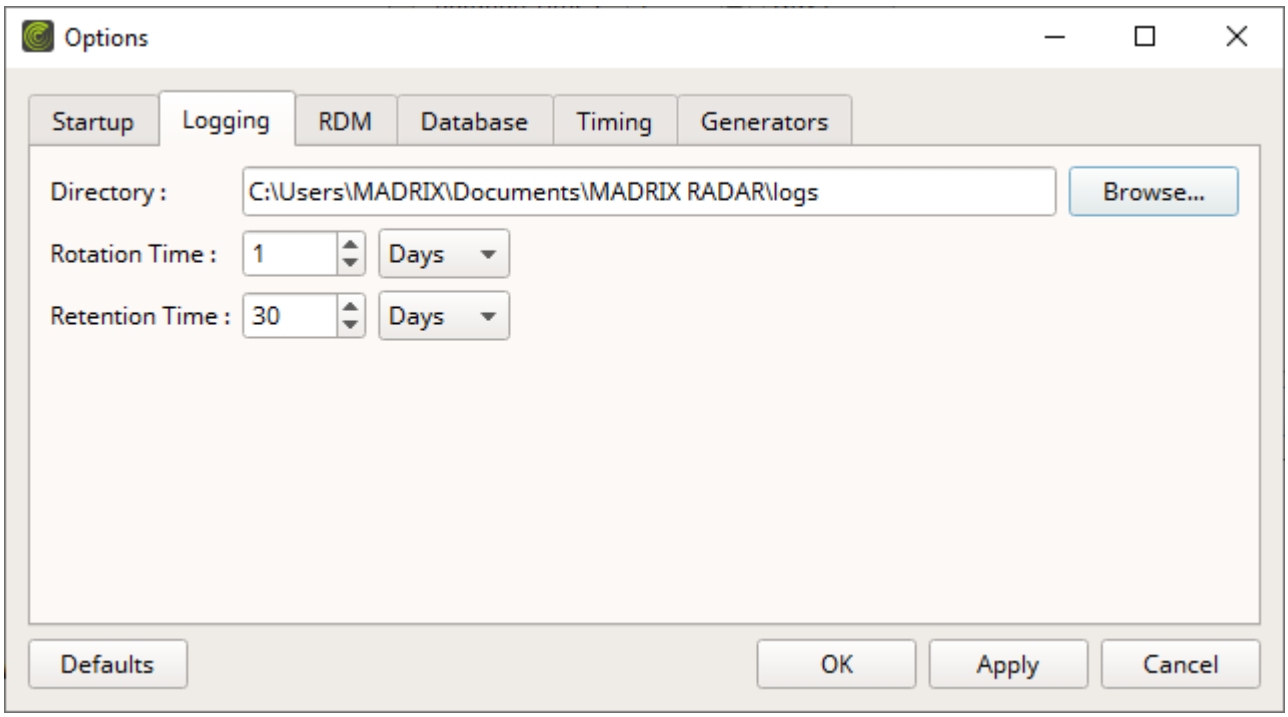
5.2 Logging

This topic includes:

Overview

Software options include various settings regarding the MADRIX RADAR Software itself.

- Go to the menu ***Preferences > Options... > Logging***
  [Keyboard shortcut: ***Ctrl + Alt + O > Logging***]



- Set up the options as explained below.
- Restore the default settings via ***Defaults***.
- Confirm any changes with ***OK*** or ***Apply***. Discard any changes via ***Cancel***.

Options

- ***Directory -*** Defines the location on your computer/system, where log files are saved.
  - ***Browse... -*** Allows you to choose a different folder or directory.

- ***Rotation Time -*** Defines the time interval after which a new file is created. Enter any number and choose between ***Hours***, ***Days***, and ***Weeks***.
  [The default value for this option is 1 day.]

- ***Retention Time -*** Defines the time interval after which log files are deleted from the computer/system. Enter any number and choose between ***Hours***, ***Days***, and ***Weeks***.
  [The default value for this option is 30 days.]

Notes

- All Logfile options will be saved locally on your computer.

5.3 RDM

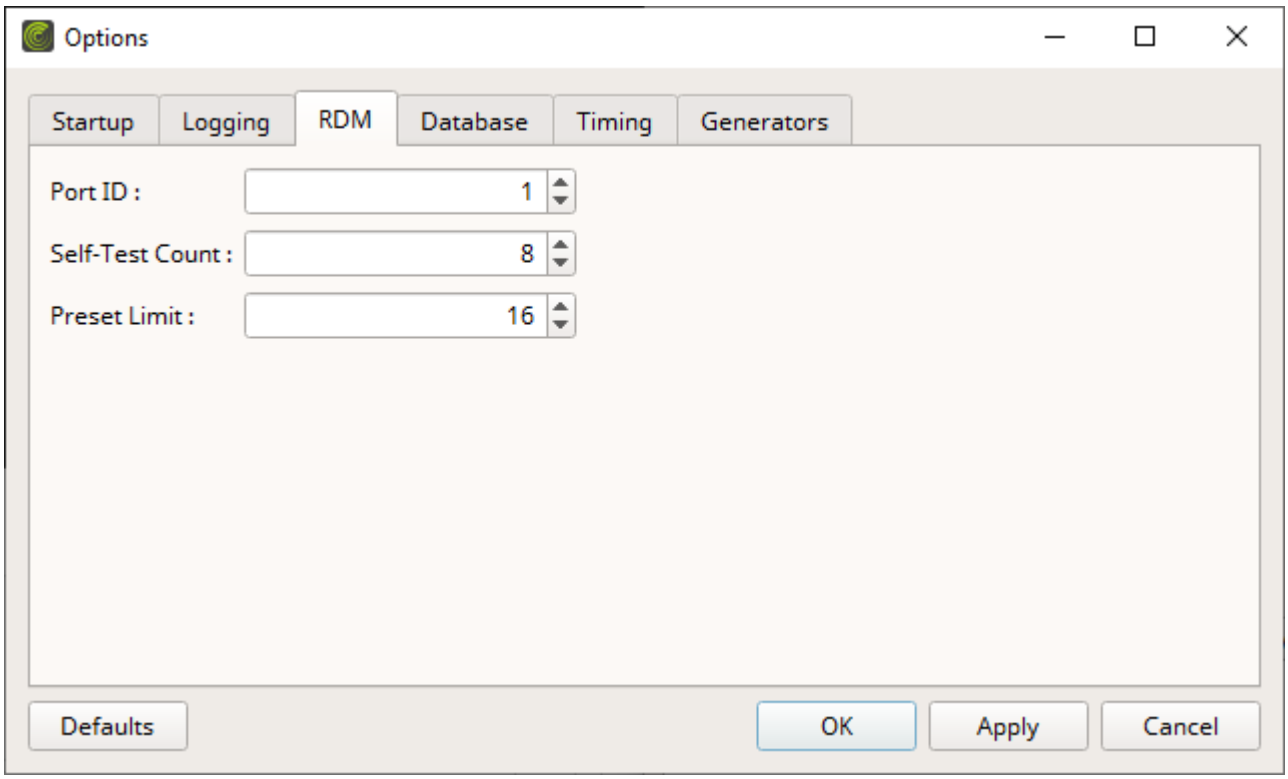
This topic includes:

Overview

RDM options include settings regarding the RDM protocol and RDM standard itself.

These include parameters that cannot be set automatically or should be adjusted by the user.

- Go to the menu ***Preferences > Options... > RDM***
  [Keyboard shortcut: ***Ctrl + Alt + O > RDM***]



- Set up the options as explained below.
- Restore the default settings via ***Defaults***.
- Confirm any changes with ***OK*** or ***Apply***. Discard any changes via ***Cancel***.

Options

- ***Port ID -*** Defines the specific identification number for MADRIX RADAR as an RDM controller to be able to distinguish between possibly multiple RDM controllers in the network.
  [Valid values range from 1 to 255. This option is set to 1 by default.]

- ***Self-Test Count -*** Defines the highest number regarding self-tests that is queried from devices. Refers to the parameter ***Self-Test*** that may be reported by RDM Responders.
  - RDM devices can include a number of self tests as defined and implemented by the manufacturer. These don't necessarily have to be numbered consecutively and there is no recommend maximum count.
  - As such, you may want to choose to query for all 254 possible tests all the time. However, please note that this can drastically increase the network traffic depending on the number of available RDM devices in the network.

[Valid values range from 0 to 254. This option is set to 8 by default.]

- ***Preset Limit -*** Defines the highest scene number that is queried from devices.
  - RDM devices can include a number of scenes as defined and implemented by the manufacturer. These don't necessarily have to be numbered consecutively.
  - As such, you may want to define the cap accordingly. However, please note that a high number can drastically increase the network traffic depending on the number of available RDM devices in the network.
  [Valid values range from 0 to 65534. This option is set to 16 by default.]

Notes

- All RDM options will be saved locally on your computer.

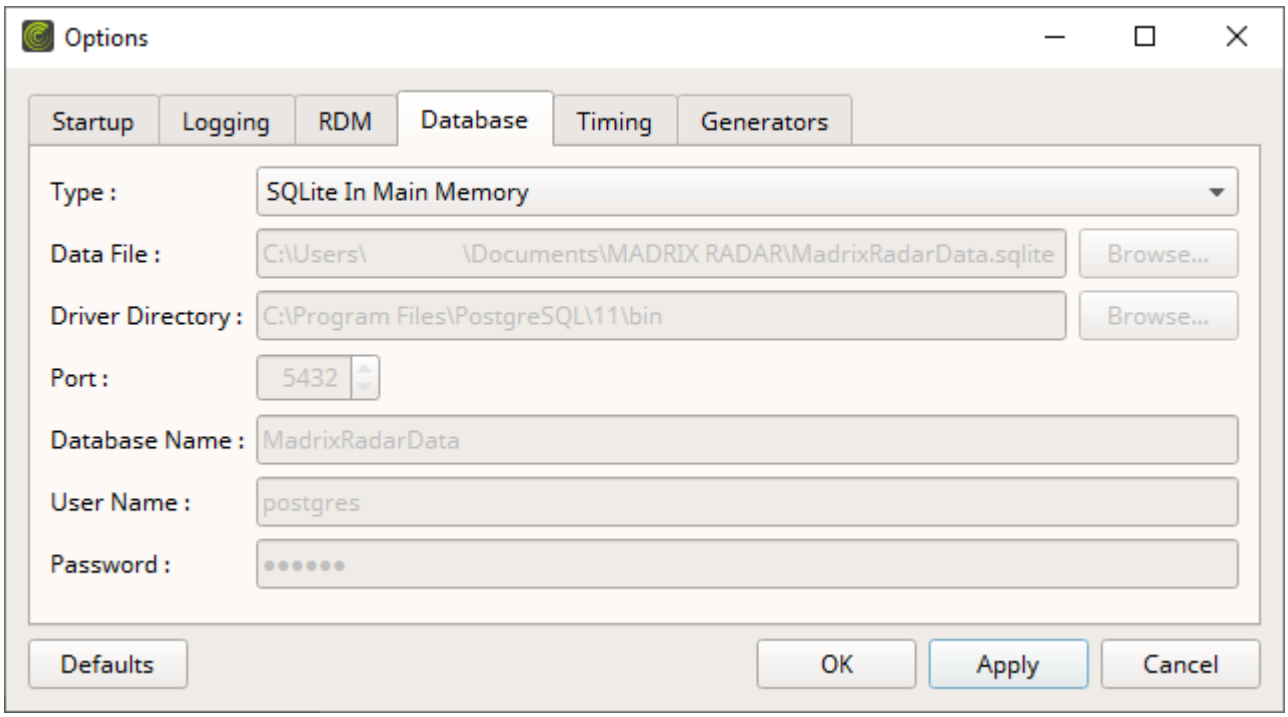
5.4 Database

This topic includes:

Overview

Database options include settings regarding database usage and recorded RDM data.

- Go to the menu ***Preferences > Options... > Database***
  [Keyboard shortcut: ***Ctrl + Alt + O > Database***]



- Set up the options as explained below.
- Restore the default settings via ***Defaults***.
- Confirm any changes with ***OK*** or ***Apply***. Discard any changes via ***Cancel***.

Introduction

Database Management System

You can choose from 3 different ***Types***:

- **SQLite In Main Memory**
  [The default option is ***SQLite In Main Memory***]
- **SQLite File**
- **PostgreSQL Server**

Please note: Choosing a database management system is subject to availability here in the software. A different database system that is not provided as an option as listed above cannot be selected or chosen.

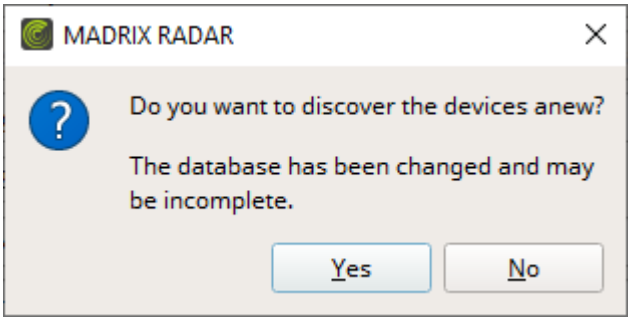
Comparison

SQLite In Main Memory	SQLite File	PostgreSQL Server
▪ Is the default option.		▪ Is required when using the Big Data/History feature and data trends.
▪ Is useful for short-term monitoring and when data does need not be saved and can thus be discarded without ramifications. ▪ Is useful when using MADRIX RADAR only as configuration tool for device addressing, for example.	▪ Is useful for short-term monitoring and the requirement to have data stored beyond any restart of the software. ▪ Is useful when using MADRIX RADAR only as configuration tool for device addressing, for example.	
▪ Is the default option. ▪ Does not require any configuration. ▪ Only stores RDM-device data in the temporary memory of the computer [RAM]. ▪ Data quantities are thus limited to the available system memory. ▪ Data can thus be processed and accessed very quickly. ▪ Any data is discarded if the software is closed in any way.	▪ Only requires very little configuration. ▪ Writes a separate file onto the hard drive in order capture, save, and preserve recorded RDM-device data. ▪ Is an advanced system for data management, which ensures data integrity and data consistency, for example. ▪ Data quantities are thus limited to the available hard-drive space.	▪ Is a sophisticated database system to capture, save, and preserve recorded device data. ▪ Is an advanced system for data management, which ensures data integrity and data consistency, for example. ▪ The data is still available even if the software is closed. ▪ Can be set up on the same computer as MADRIX RADAR [locally] or on a different server/computer [remotely].

	▪ Data thus cannot be processed and accessed as quickly as when stored in the system's memory. ▪ Always overwrites parameter values and sensor data with updated information and thus does not enable data trends [that is, no data history is available]. ▪ The data is still available even if the software is closed.	
▪ Is automatically provided together with the software's installation.	▪ Is automatically provided together with the software's installation.	▪ Is not included in the software's installation and needs to be installed separately. ▪ A database needs to be created in PSQL after the installation. [The correct name of the database, login information, and more needs to be entered in the options as explained below. See: **PostgreSQL Server**]

Switching Databases

When switching to a different option, you will be asked if you would like to scan for devices in the network again.
Please note: Each database holds their own devices. When switching databases, data will not be transferred from the previous database to the new database.



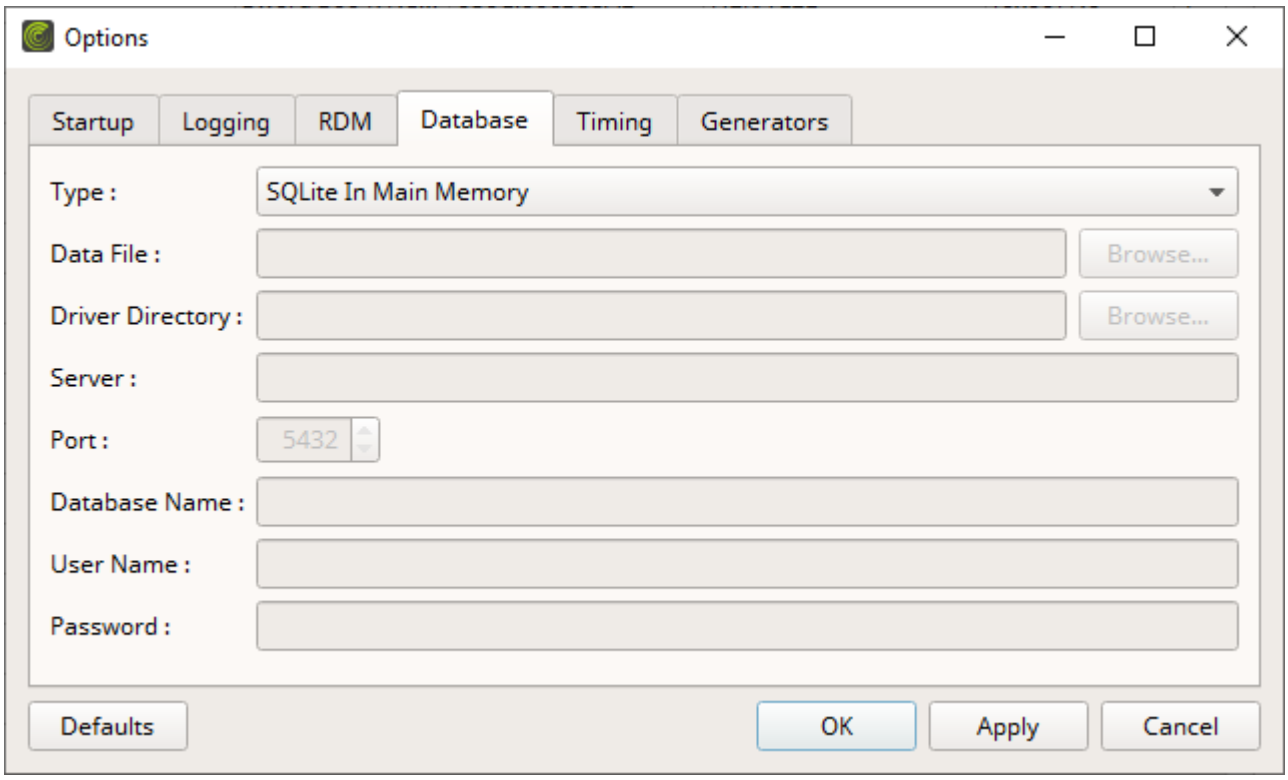
SQLite In Main Memory

Overview

SQLite can be used to record only temporary data within the computer's memory.

Options

It is not necessary to set up any options for this type of database management system [other than selecting it as the chosen ***Type***].



SQLite File

Overview

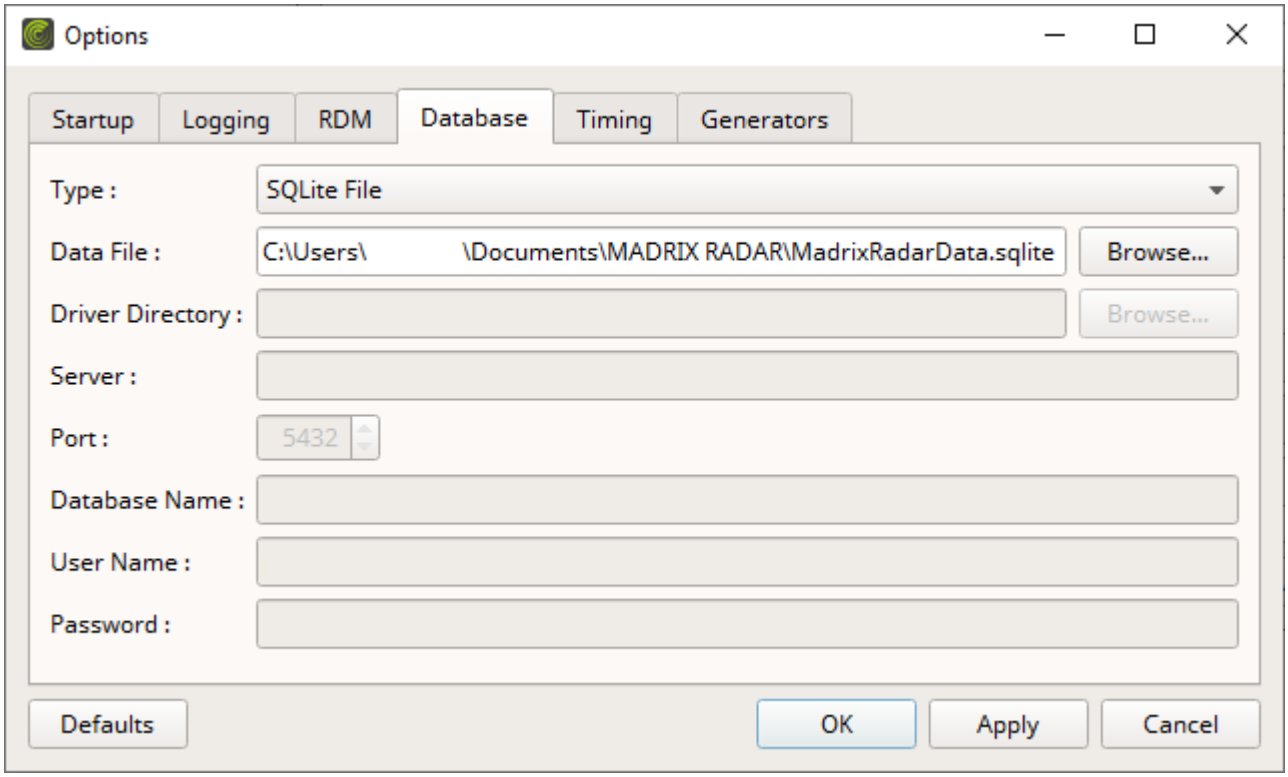
SQLite can be used to create a separate database file. Data is then stored beyond any restart of the software.

Options

The following options are available and can be changed.

- ***Type -*** Choose ***SQLite File***
- ***Data File -*** Defines the location of the database file on your computer.
  - ***Browse... -*** Allows you to choose a different folder or directory.

- By default, <User Directory>\Documents\MADRIX RADAR\MadrixRadarData.sqlite is selected.
- A new file will be created when choosing a new directory.



PostgreSQL Server

Overview

PostgreSQL Server is required when using the Big Data/History feature.

MADRIX RADAR supports PSQL version 11 and higher.

Note: This type of database is not automatically installed together with MADRIX RADAR!

- **You need to install this server-based database management system separately if you wish to use it.**
- **It can be installed on the same computer system or you can choose a different server/computer.**

Please see the following link for more information and the download:
»**https://www.postgresql.org/**

Local Usage

Overview

Install and configure PSQL on your local computer that also runs the MADRIX RADAR Software and set up the following options in MADRIX RADAR to enable it.

1] PSQL Installation & Database Configuration

You need to set up PSQL before launching MADRIX RADAR or close the MADRIX RADAR Software should it already be running.

- Download PSQL.
- Run the PSQL installer and install the database management system on the computer that also runs the MADRIX RADAR Software.
  - Remember the installation directory. It is required later.
- Create a new database that MADRIX RADAR should use [via ***pgAdmin***].
  - Remember the name you gave the database as well as user names and passwords. They are required later.
- See »**https://www.postgresql.org/** for the download and detailed documentation.
  - This user manual cannot provide full instructions on how to manage PSQL.
  - Refer to an IT specialist if needed.

2] Options In MADRIX RADAR

Set up the following options in the MADRIX RADAR Software to enable usage of PSQL.

- ***Type -*** Choose ***PostgreSQL Server***

- ***Driver Directory -*** Defines the location of the required library files [*.dll] on your computer.
  - ***Browse... -*** Allows you to choose a different folder or directory.
  - **Search for the correct directory on your computer or enter it manually. It is mandatory.**
  - Usually, the bin directory is within the PSQL installation folder: **<PSQL Installation Directory>\<PSQL Version>\bin** [such as: C:\Program Files\PostgreSQL\12\bin]
  - MADRIX RADAR supports PSQL version 11 and higher.
  - Changing the library path requires a software restart in order to load the required files.

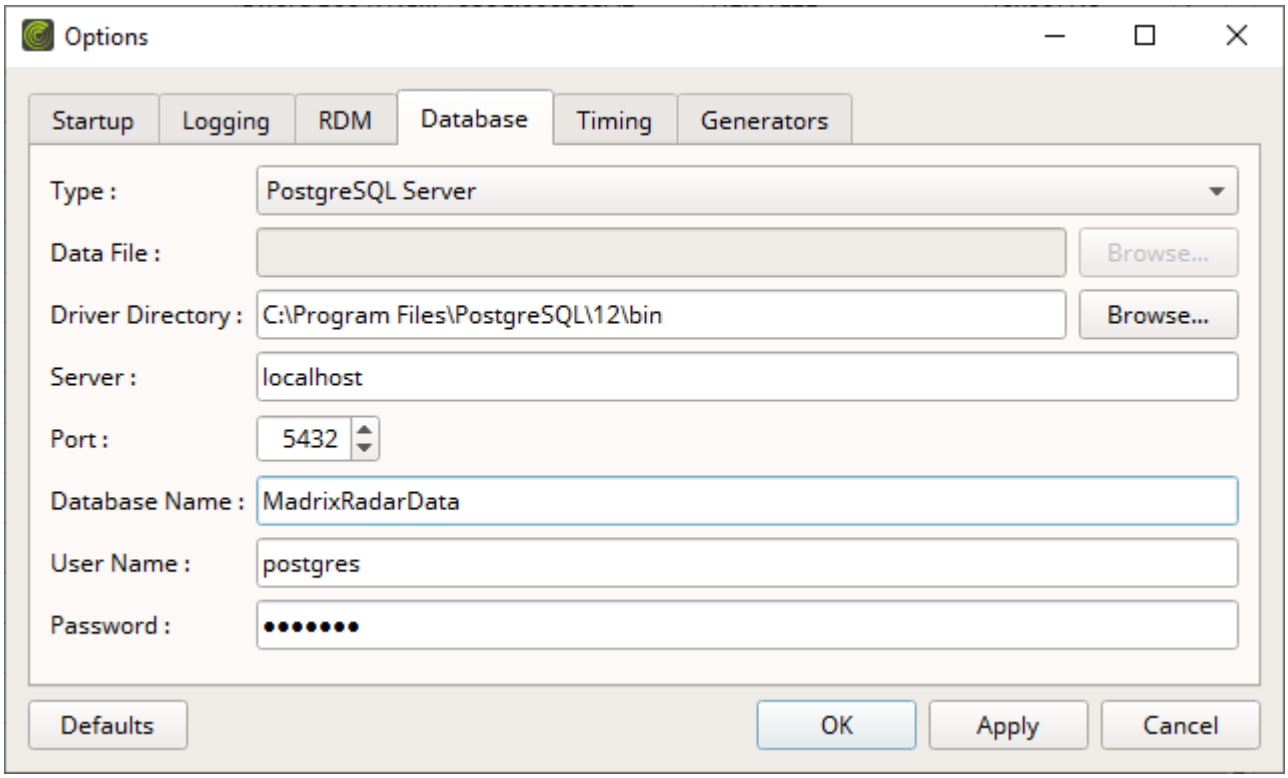
- ***Server -*** Defines the network address of the PSQL server, that is the computer that hosts the PSQL database management system.
  - When using PSQL locally, the local address needs to be used: ***localhost***, or alternatively ***127.0.0.1***
  [The default value is localhost.]

- ***Port -*** Defines the port that is used to establish the connection to the database. This option is available here since the port can be changed in the configuration of PSQL.
  [The default value is the PSQL default port 5432.]

- ***Database Name -*** Defines the name of the database. This can be especially useful when managing several projects/databases and the need to distinguish between them.
  - Enter the name as defined by you during the creation of a corresponding database in PSQL!
  [MADRIX RADAR provides a default name with MadrixRadarData. This is unlikely to be correct if you have not chosen the same name during creation of the database.]
  [Do not enter and use the default database of PSQL named postgre, since it includes incorrect data.]

- ***User Name -*** Enter the name that is used to establish the connection to the database; as set up during the configuration of PSQL.
  [Any input will be saved and encrypted with the Advanced Encryption Standard AES 256.]

- ***Password -*** Enter the password that corresponds with the user name; as set up during the configuration of PSQL. Any input will be hidden.
  [Any input will be saved and encrypted with the Advanced Encryption Standard AES 256.]



Remote Server

Overview

MADRIX RADAR also provides the option to connect to a remote PSQL server.

1] Ethernet Connection

Establishing a remote connection requires the involved systems to be [physically] connected.
In the most basic way, this means that the local computer that runs the MADRIX RADAR Software needs to be connected to the remote server that hosts the PSQL database.
[Local and remote refers to two separate computer systems, which still may very well be within your physical reach.]

- Connect the MADRIX RADAR computer and the PSQL server over Ethernet network.
  - Setting up unique and fixed IP addresses for each system is required.
  - Make also sure to set up the correct subnet mask, which needs to be the same on both systems.
  - Using a DNS is recommended, but not necessarily required [an IPv4 direct connection is possible].
  - Refer to an IT specialist if needed.

  [Connections over virtual networks, such as VPN, are not part of the explanation here.]

2] PSQL Installation & Database Configuration On The Remote Server

- Download PSQL.
- Run the PSQL installer and fully install the database management system on the remote server.
- Create a new database that MADRIX RADAR should use [via ***pgAdmin***].
  - Remember the name you gave the database as well as user names and passwords. They are required later.
- See »**https://www.postgresql.org/** for the download and detailed documentation.
  - This user manual cannot provide full instructions on how to manage PSQL.
  - Refer to an IT specialist if needed.

3] PSQL Configuration: Allow Remote Server

This configuration is required before setting up options in MADRIX RADAR under step 5]. Otherwise, you need to restart MADRIX RADAR.

- **Connecting to a remote server is not enabled by default in PSQL. You need to allow a remote connection by editing a configuration file.**
- Navigate to the ***installation directory*** of PSQL and open the ***data*** folder [such as: C:\Program Files\PostgreSQL\11\data].
- Search or look for the file ***pg_hba.conf***
- Open the file with a text editor [such as Notepad].
- Scroll to the end of the file and enter the MADRIX RADAR computer that should connect to this PSQL server.
  - You have various options on how to enter the computer, such as using the IPv4 IP address, IPv6 IP address,

and device name [DNS lookup required].

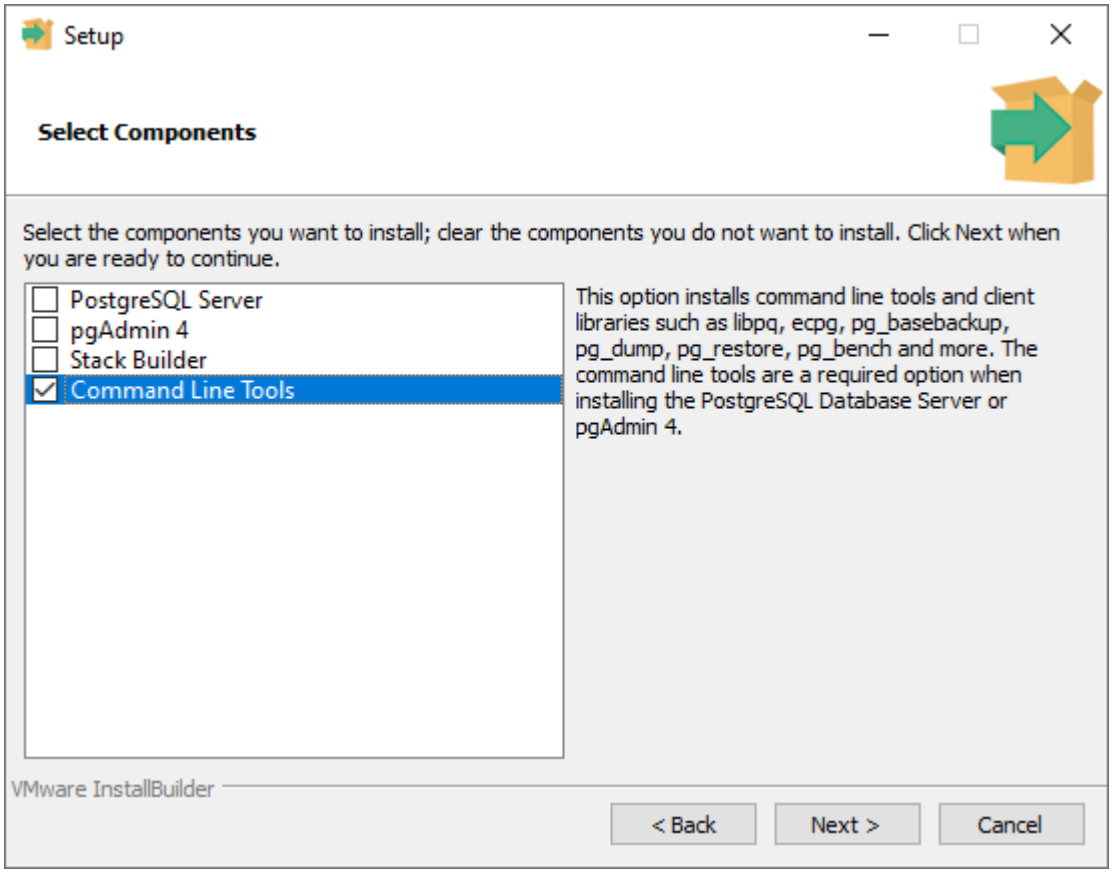
- An example for valid entry can look like this: `host all all 172.16.1.10/24 md5`

- You have different options on what and how to allow remote connections.
- **Restart the PSQL server application after making these changes!**
- See »**https://www.postgresql.org/** for detailed documentation about the pg_hba.conf file and how to enter the computer.
  - This user manual cannot provide full instructions on how to manage PSQL.
  - Refer to an IT specialist if needed.

4] PSQL Installation On The Local Computer

Please install PSQL before launching MADRIX RADAR or close the MADRIX RADAR Software should it already be running.

- Download PSQL.
  - The PSQL version can be higher than version used on the remote server.
- Run the PSQL installer and partly install the database management system on the computer that also runs the MADRIX RADAR Software. The only required components are ***Command Line Tools***
  - Remember the installation directory. It is required later.
- **Make sure that a fully functioning network connection has been established between the local computer and the remote server!**
- See »**https://www.postgresql.org/** for the download and detailed documentation.
  - This user manual cannot provide full instructions on how to manage PSQL.
  - Refer to an IT specialist if needed.



5] Options In MADRIX RADAR

Set up the following options in the MADRIX RADAR Software to enable usage of PSQL on a remote server.

- ***Type -*** Choose ***PostgreSQL Server***

- ***Driver Directory -*** Defines the location of the required library files [*.dll] on your computer.
  - ***Browse... -*** Allows you to choose a different folder or directory.
  - **Search for the correct directory on your computer or enter it manually. It is mandatory.**
  - Usually, the bin directory is within the PSQL installation folder: **<PSQL Installation Directory>\11\bin** [such as: C:\Program Files\PostgreSQL\11\bin]
  - Changing the library path requires a software restart in order to load the required files.

- ***Server -*** Defines the network address of the PSQL server, that is the computer that hosts the PSQL database management system.

- When using PSQL remotely, the address of the remote server needs to be used.
- You have various options on how to enter the server, such as using the IPv4 IP address, IPv6 IP address, and device name.
- Example: ***172.16.1.0***
- Make sure to enter the correct address!

[The default value is localhost.]

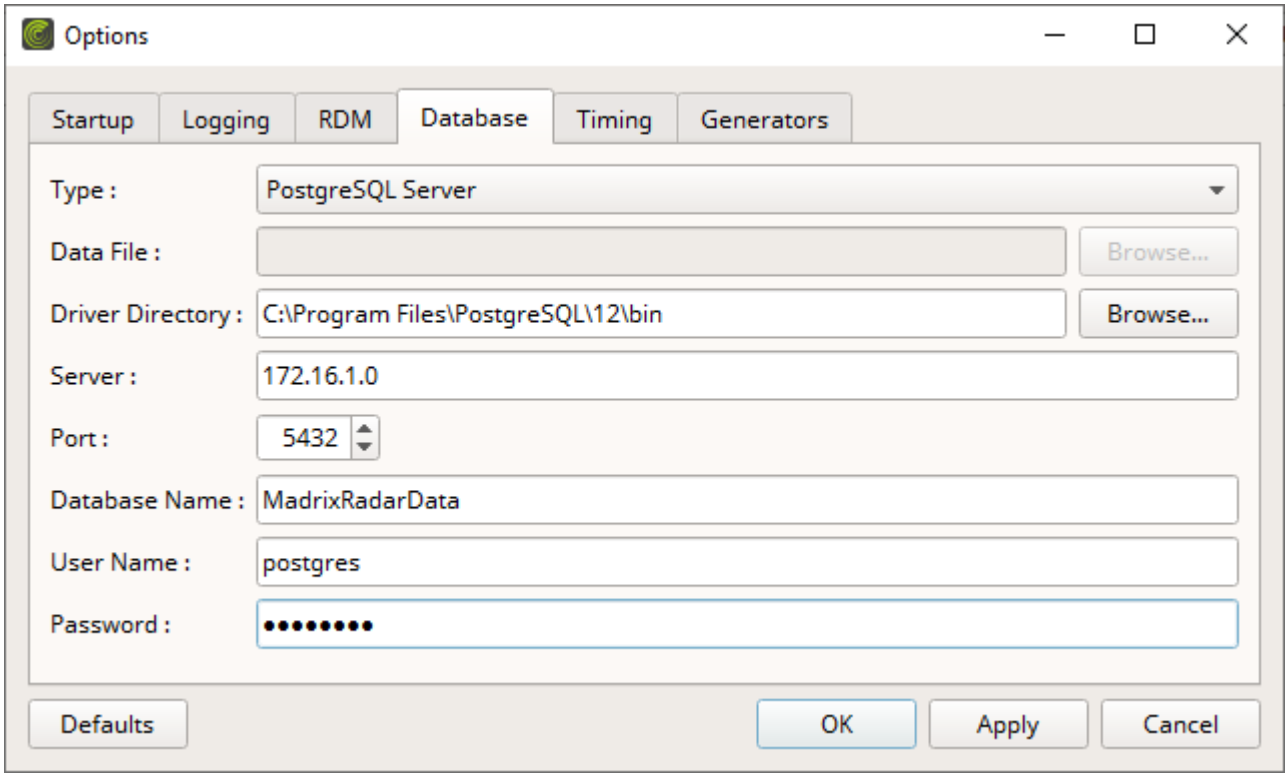
- ***Port -*** Defines the port that is used to establish the connection to the database. This option is available here since the port can be changed in the configuration of PSQL.
  [The default value is the PSQL default port 5432.]

- ***Database Name -*** Defines the name of the database. This can be especially useful when managing several projects/databases and the need to distinguish between them.
  - Enter the name as defined by you during the creation of the corresponding database in PSQL on the remote server.

  [The default value is MadrixRadarData.]

- ***User Name -*** Enter the name that is used to establish the connection to the database; as set up during the configuration of PSQL on the remote server.
  [Any input will be saved and encrypted with the Advanced Encryption Standard AES 256.]

- ***Password -*** Enter the password that corresponds with the user name; as set up during the configuration of PSQL on the remote server. Any input will be hidden.
  [Any input will be saved and encrypted with the Advanced Encryption Standard AES 256.]



Notes

- All RDM database options set up here will be saved locally on your computer.

Storage Space And Memory Requirements

Overview

Since MADRIX RADAR uses database management systems to manage the data that is accumulated when working with RDM devices, a lot of data might ultimately be handled.

The following examples try to estimate the required storage space for different scenarios.

Influencing Factors

Please note: A definite answer cannot be provided, since the needed storage or memory depends on a lot factors. Such factors are amongst others:

- Which database management system is used,
- How many RDM devices should be managed,
- How many RDM nodes are used,
- How many parameters and sensors a device provides/reports,
- How often data and status updates are queried from devices,
- How many status messages or events may occur during the monitored period of time,
- If the data should be recorded or not [Big Data/data history],
- And more.

Examples

- As you will see, using the Big Data features and a PSQL database can result in substantial amounts of data over time.

- Example 01:
  - 1000 RDM devices, with 25 parameters each, with 25 sensors each, are recorded for 1 month [data history] into a PSQL database, while data is queried once per day and each sensor value creates an event.
  - Estimation for needed storage/memory : ~100 MB

- Example 02:
  - 200 RDM devices, which support nearly all parameters each, with 50 sensors each, are recorded for 1 day [data history] into a PSQL database, while data is queried every 5 minutes.
  - Estimation for needed storage/memory : ~345 MB

- Example 03:
  - 2000 RDM devices, which support MIN/MAX values as well as recorded values, with 20 sensors each, are recorded for 6 months [data history] into a PSQL database, while data is queried every 4 hours.

- Estimation for needed storage/memory : ~5.2 GB

- Example 04:
  - 200 RDM devices, with 50 parameters each, with 50 sensors each, managed with SQLite (file) without data history.
  - Estimation for needed storage/memory : 2 MB

- Example 05:
  - 2000 RDM devices, with 10 parameters each, with 10 sensors each, managed with SQLite (in-memory) without data history.
  - Estimation for needed storage/memory : 4 MB

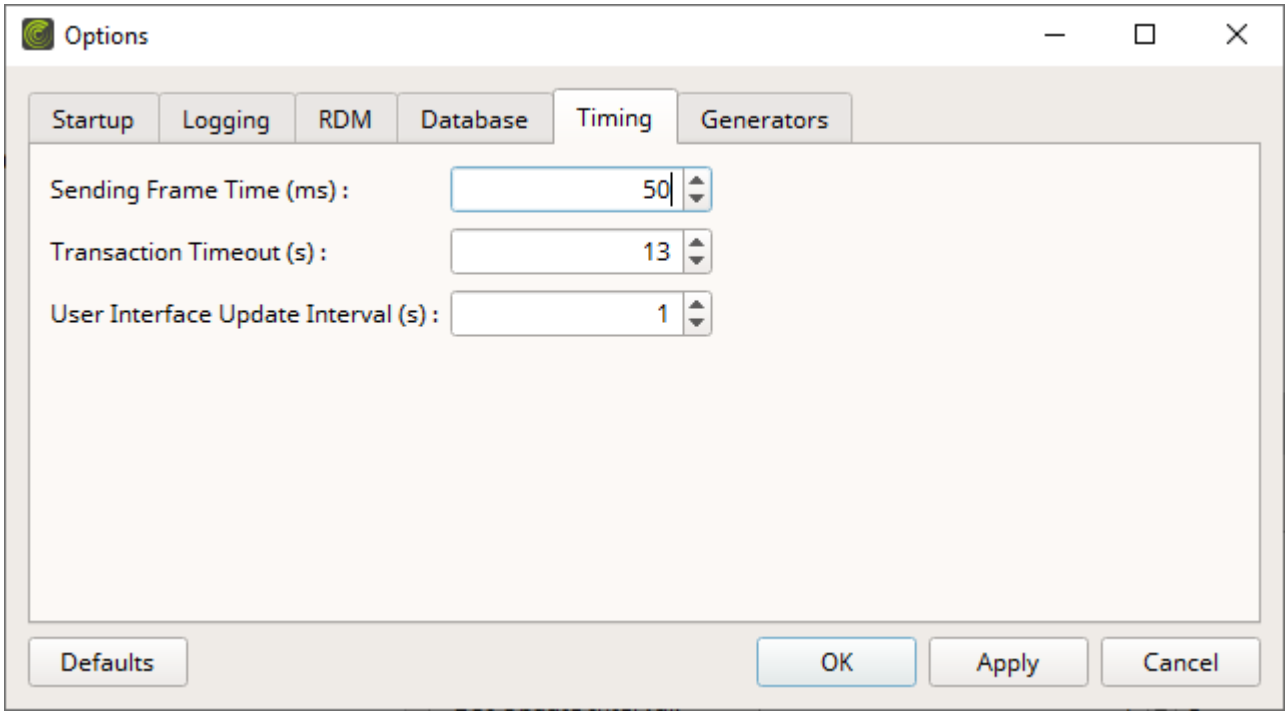
5.5 Timing

This topic includes:

Overview

Timing options include various settings regarding the RDM timing preferences and request settings.

- Go to the menu ***Preferences > Options... > Timing***
  [Keyboard shortcut: ***Ctrl + Alt + O > Timing***]



- Set up the options as explained below.
- Restore the default settings via ***Defaults***.
- Confirm any changes with ***OK*** or ***Apply***. Discard any changes via ***Cancel***.

Options

- ***Sending Frame Time (ms) -*** Defines the minimum time interval between 2 RDM data packages on a DMX line in milliseconds [ms].
  - If this value is set too low, hardware interfaces may receive too many data packages, which can result in overload.
  - If this value is set too high, the maximum possible data transfer rate will not be reached, which can unnecessarily increase the time required to obtain RDM information and data.
  - Is mainly defined by the used hardware interfaces. As such, it is recommended to choose the lowest common denominator across all connected interfaces.

  [Valid values range from 25 to 1000. This option is set to 50 ms by default.]

- ***Transaction Timeout (s) -*** Defines the maximum allowed time interval for RDM communication and transactions in seconds [s]. Transactions include the RDM request of the controller as well as the reply/response

of the responder.

- Any response that is received after this interval will be discarded and cannot be assigned to the original request anymore.

- If this value is too low, all packages could be discarded in extreme cases.

- If this value is too high, responses may be assigned incorrectly to unrelated requests.

- The timeout correlates to the RDM Frame Time and the number of RDM devices connected to a single DMX port of a hardware interface. The higher the RDM Frame Time and the more devices are connected to a single port, the longer a response can take.

[Valid values range from 1 to 30. This option is set to 13 s by default.]

- ***User Interface Update Interval (s) -*** Defines the time interval at which the software is refreshed in seconds [s]. This refers to how often the graphical user interface [GUI] is being updated and can display new and up-to-date information.

  - If this value is too low, this may result in too many database queries. This, in turn, can lead to a high number of hard-drive access operations [which can decrease a drive's lifespan due to its maximum read and write cycles].

  - If this value is too high, all or parts of the information that is shown in the software may be temporarily outdated and not up to date anymore.

  [Valid values range from 1 to 3600. This option is set to 1 s by default.]

Notes

- All Timing options will be saved locally on your computer.

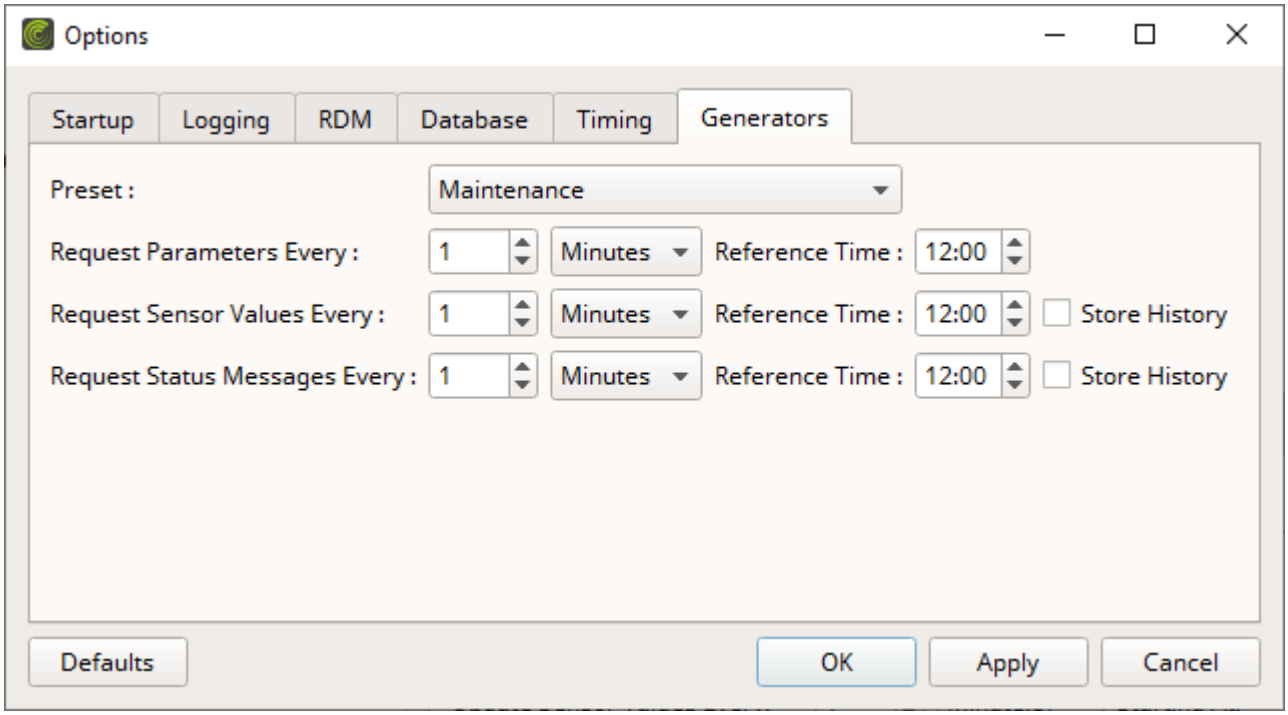
5.6 Generators

This topic includes:

Overview

Timing options include various settings regarding the RDM timing preferences and request settings.

- Go to the menu ***Preferences > Options... > Generators***
  [Keyboard shortcut: ***Ctrl + Alt + O > Generators***]



- Set up the options as explained below.
- Restore the default settings via ***Defaults***.
- Confirm any changes with ***OK*** or ***Apply***. Discard any changes via ***Cancel***.

Options

Overview

Generators refer to the built-in systems in MADRIX RADAR that automatically create and generate RDM data packages [that is, RDM requests] which are sent to the RDM devices.
In fact, RDM devices only provide replies after receiving such requests. RDM devices will not independently send data packages to a receiver, such as MADRIX RADAR.

- ***Preset -*** Allows you to choose and customize 2 different sets of settings. Choose from ***Maintenance*** and ***Monitoring***.
  - ***Maintenance*** includes much shorter time intervals by default and is recommended when actively and temporarily checking on a project in order to quickly see and receive information, notifications, and data updates. [As such, this generates much more RDM requests and thus much more data traffic on the network as a result.]
  - ***Monitoring*** includes much longer time intervals by default and is recommended when passively monitoring a project in order to be able to receive notifications on a regular basis and also for recording historical data.

Options

- ***Request Parameters Every -*** Defines the time interval at which all generic RDM parameters of the project are being queried/refreshed.
  - ***Reference Time -*** In addition, you can set the start time/time interval/offset. [The default value is 12:00.]
  - For example, updating values every 4 hours, starting at 12:00 will trigger the update 12:00, 16:00, 20:00, 24:00, 04:00, 08:00.

  [Valid values range from 60 seconds to 24 hours. The default value for this option is 1 minute for Maintenance. The default value is 24 hours for Monitoring.]

- ***Request Sensor Values Every -*** Defines the time interval at which sensor values of all known sensors of the project are being queried/refreshed.
  - ***Reference Time -*** In addition, you can set the start time/time interval/offset. [The default value is 12:00.]
  - For example, updating values every 4 hours, starting at 12:00 will trigger the update 12:00, 16:00, 20:00, 24:00, 04:00, 08:00.

  [Valid values range from 60 seconds to 24 hours. The default value for this option is 1 minute for Maintenance. The default value is 1 hour for Monitoring.]
  - ***Store History*** - Allows you to record data over time. This requires the MADRIX RADAR big data license. If disabled and/or no corresponding license is available, previous values will always be overwritten with corresponding new values. Learn more »**History**

[Historical data can include sensor values as well as sensor value events.]

- ***Request Status Messages Every -*** Defines the time interval at which the status messages of all known devices of the project are being queried/refreshed.
  - ***Reference Time -*** In addition, you can set the start time/time interval/offset. [The default value is 12:00.]
  - For example, updating values every 4 hours, starting at 12:00 will trigger the update 12:00, 16:00, 20:00, 24:00, 04:00, 08:00.
  [Valid values range from 60 second to 24 hours. The default value for this option is 1 minute for Maintenance. The default value is 1 hour for Monitoring.]
  - ***Store History*** - Allows you to record messages over time. This requires the MADRIX RADAR big data license. If disabled and/or no corresponding license is available, previous values will always be overwritten with corresponding new messages. Learn more »**History**

Notes

- All Generators options will be saved locally on your computer.

MADRIX
LIGHTING CONTROL

//PART 6

Using The Software
[Views]

6 Using The Software [Views]

This topic includes:

Introduction

The user interface of MADRIX RADAR mainly includes different views, such as device overview, parameters, and events. The following chapters will explain each view or feature in more detail.

Overview

- For any hardware-interface monitoring, use the ***Interfaces*** view.
- For any RDM device configuration, the ***Devices*** and ***Parameters*** views are most important. In addition, the ***Patch Editor*** is a extremely useful tool for device addressing.
- For device monitoring and project supervision, the ***Sensors*** and ***Events*** views are most important. The ***Status Messages*** view can also be useful.
- For Big Data and data recording, the ***History*** view is most important.

Topics Of This Chapter

- »Sensors
- »Status Messages
- »Slots
- »Presets
- »Events
- »Event Notifications
- »History
- »Log
- »Patch Editor
- »Snapshots

6.1 Interfaces

This topic includes:

Introduction

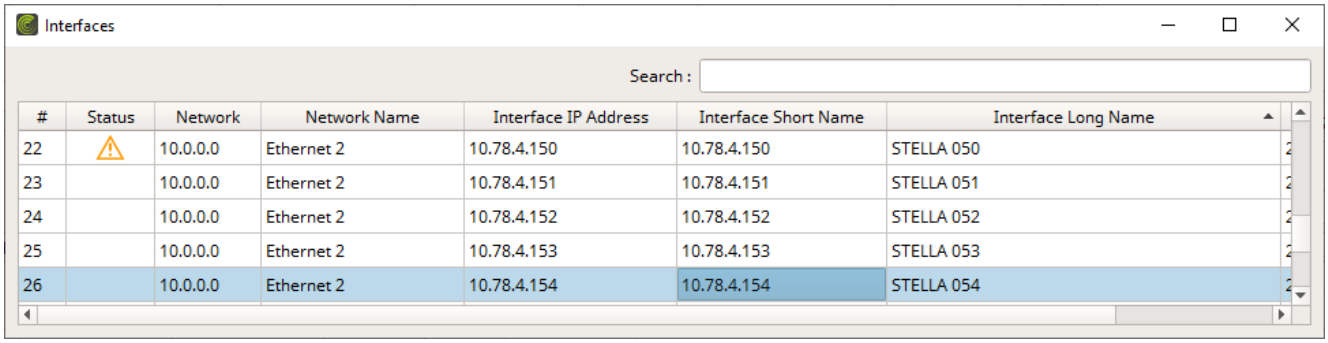
Interfaces and nodes are often part of any project installation. While not separately identified by the RDM specifications, MADRIX RADAR provides built-in mechanisms to monitor their status as well.

Requirements and conditions for interface monitoring:

- Interfaces need to support RDM over Art-Net.
  [This is also a general requirement for nodes/interfaces to be used with MADRIX RADAR.]
- Monitoring of interfaces is not tied to the license system of the software. Interfaces do not need a separate license validation.
  [»License Model]

Detecting lost connections for interfaces is possible when no more data or status information is received by the device, for example:

- For devices with a hardware failure.
- If the RDM features of a device are disabled.
- If the assignment of universe(s) has changed.



Overview

By default, the following information is provided since the following columns are enabled in the list:

Represents the device numbering as index and is especially useful for referencing interfaces in the list or seeing the total number of found interfaces.

Status May show an orange icon [that is, a warning triangle] if problems are detected. In addition, a tooltip with specific information is provided [via mouse-over].

⚠

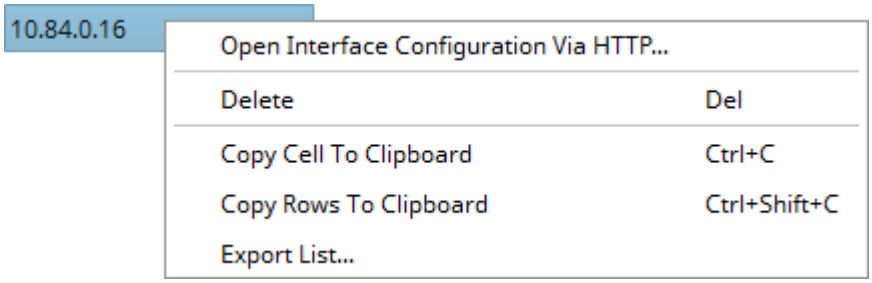
Warnings may include, for example:

- ***the connection to this interface has been lost***
- ***the interface is not capable of transmitting RDM data, or RDM is currently disabled***

Network	Shows the network IP address of the network adapter, to which the interface is connected. [TCP/IPv4] [This information refers to »Art-Net.]
Network Name	Shows the name of the network adapter.
Interface IP Address	Shows the IP address of the hardware interface. [This information refers to »Art-Net.]
Interface Short Name	Shows the short name of the hardware interface. [This information refers to »Art-Net.]
Interface Long Name	Shows the long name of the hardware interface. [This information refers to »Art-Net.]
Interface Firmware	Shows the current firmware version of the hardware interface. [This information refers to »Art-Net.]

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Open Interface Configuration Via HTTP...	Opens a new web-browser window using the IP address of the interface in order to access the web configuration of the device. The interface needs to support this feature.

Delete	Removes the interface from the list. [Keyboard shortcut: ***Del***] A progression window will be shown if the process of deleting a large number of interfaces at once should take longer than 1 second.
Copy Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]
Copy Rows To Clipboard	Copies the currently selected row or rows [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]
Export List...	Saves the entire, currently shown list/view/table as a preformatted text file.

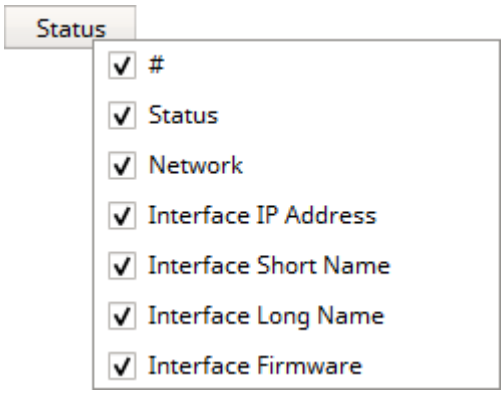
Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***aur*** will include results for ***AURA***.
  - You may specify certain columns by using a colon [:].
  - For example: ***Desc:Vol*** shows all lines that include voltage status information by referencing the column ***Description***, for example.

Customization

MADRIX RADAR allows you to choose which columns are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.



☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
#	Shows or hides the Index column.
Status	Shows or hides the Status column.
Network	Shows or hides the Network column.
Interface IP Address	Shows or hides the Interface IP Address column.
Interface Short Name	Shows or hides the Interface Short Name column.
Interface Long Name	Shows or hides the Interface Long Name column.
Interface Firmware	Shows or hides the Interface Firmware column.

6.2 Devices [Main View]

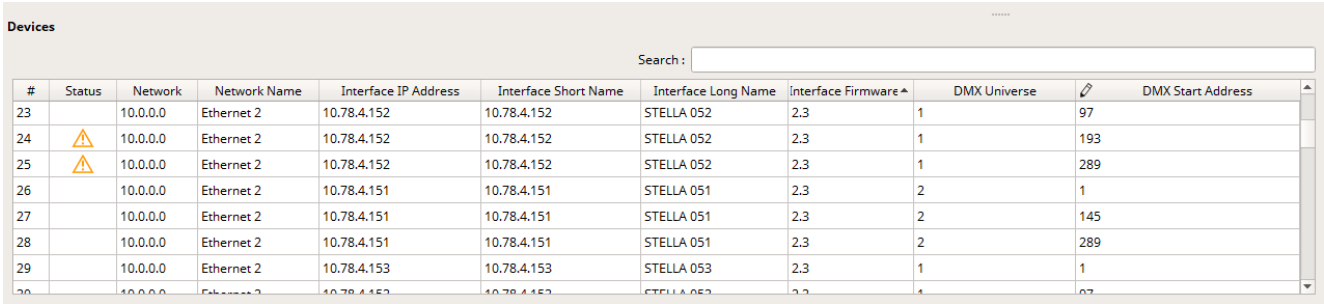
This topic includes:

Introduction

The list of devices is the main view of the software.

It shows all found RDM devices [that is, luminaires and lighting fixtures for example] and their respective settings, parameters, and characteristics.

This also includes the hardware interfaces to which they are connected.



Overview

By default, the following information is provided since the following columns are enabled in the list:

#	Represents the device numbering as index and is especially useful for referencing devices in the list or seeing the total number of found RDM devices.
Status 	May show an orange icon [that is, a warning triangle] if sensor values of an RDM device are out of the valid range. In addition, a tooltip with specific information is provided [via mouse-over].
Network	Shows the network IP address of the network adapter, to which the interface is connected. [TCP/IPv4] [This information refers to »**Art-Net**.]
Network Name	Shows the name of the network adapter.
Interface IP Address	Shows the IP address of the hardware interface to which the RDM device is connected. [This information refers to »**Art-Net**.]
Interface Short Name	Shows the short name of the hardware interface to which the RDM device is connected. [This information refers to »**Art-Net**.]
Interface Long Name	Shows the long name of the hardware interface to which the RDM device is connected. [This information refers to »**Art-Net**.]
Interface Firmware	Shows the current firmware version of the hardware interface to which the RDM device is connected. [This information refers to »**Art-Net**.]
Device Label	Can be edited. Shows the currently set name or description of the RDM device.
Unique ID	Represents a unique identifier of the RDM device. It is shown as HEX [without 0x] and using a colon [:] as separator. The first part is the ESTA ID of the manufacturer and the second part is a number, which can be freely defined by the manufacturer.
ESTA Manufacturer	Shows the name of the manufacturer based on the list of manufacturers as published by ESTA. [It is retrieved from the first part of the RDM-device ID.]

Identify	Can be edited. Allows you to choose/activate the built-in identification mode of the RDM device if available from the device.
DMX Universe	Shows the currently assigned DMX universe for the RDM device. [Learn more »Glossary]
DMX Start Address	Can be edited. Shows the currently set DMX start address of the RDM device. [Learn more »Glossary]
DMX Personality	Can be edited. Shows the currently set DMX personality of the RDM device. This can also be referred to as operation mode of the RDM device.

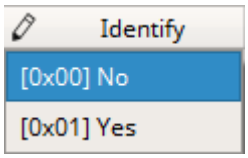
Editing And Changing Values

Overview

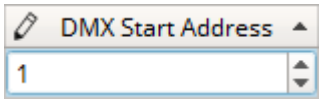
- In general, this overview shows information provided by the RDM device.
-  In specific cases, the edit icon [that is, a pen] shows that the respective information/column can be edited by you.

Single Edits

- ***Left Mouse Click + Hold -*** Allows you to select a single cell.
- ***Left Mouse Double-Click -*** Perform a double-click with your left mouse button on a value in order to edit it.
- Keyboard shortcut: ***F2***
- Confirm with ***Enter*** [or click outside of the currently active cell with the mouse]. Abort any changes with ***Escape***.



You may be presented with different choices for the specific parameter.



You may be able to directly enter numbers or text as input.

Multi-Edits

- ***Ctrl + Left Mouse Click*** or ***Shift + Left Mouse Click + Select First List Entry + Select Last List Entry -*** Allows you to select multiple items in the list.
- ***Ctrl + A -*** Selects all devices in the list.
- ***F2 -*** Activates the edit mode for multiple devices at once. Select multiple devices first.
- Confirm with ***Enter*** [or click outside of the currently active cell with the mouse]. Abort any changes with ***Escape***.

- Please note that different devices may support different ranges of values for a specific parameter.
  - If you set a specific value for a parameter, it will only be sent to devices that support it.
  - Certain parameters, such as DMX personality, will only set a specific number. If devices have different modes implemented for the different numbers, the mode 5 might not be the same for every device.

Valid Values And Limits

The valid values for each parameter are defined by the RDM device and its set of features [such as DMX Personality], the RDM standard [such as Identify], or a different standard [such as DMX Start Address for DMX512].

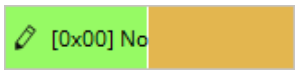
Visual Feedback For Edits

The software will show you if any changes you have made are set successfully or not. This status is shown for a couple of seconds after each change.

Green - The RDM device reported back that the changes were successfully set.

Yellow - The request is currently pending.

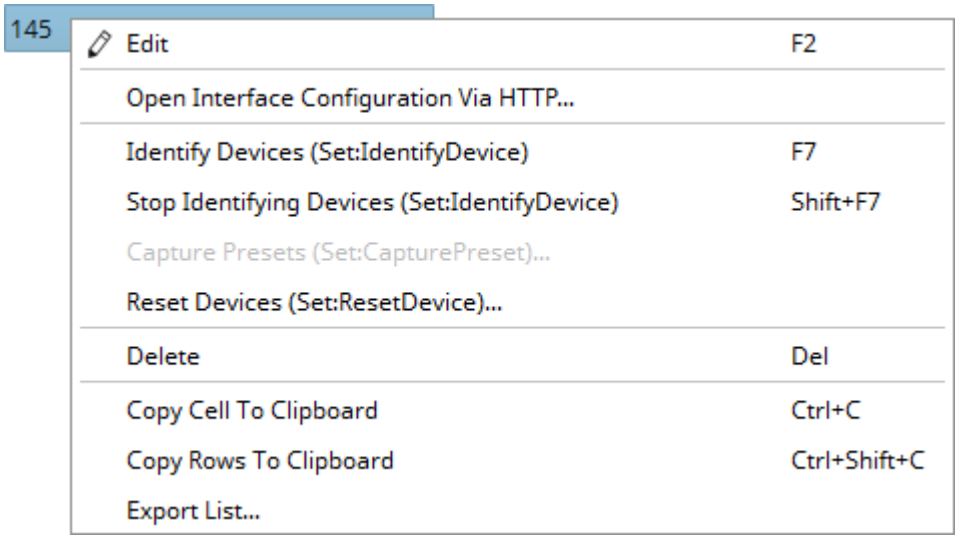
Red - The RDM device could not successfully set the new value or the request timed out. Learn more »**Missing Responses From RDM Devices**



If you are editing several devices, the list cell can split in the according number of selected devices and show each status individually.

Context-Menu

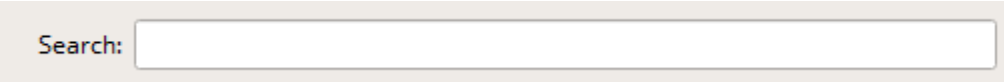
- ***Right Mouse Click -*** Perform a click with your right mouse button on a device.



Edit	Allows you to change the entry [if it can be edited]. [Keyboard shortcut: ***F2***]
Open Interface Configuration Via HTTP...	Opens the configuration website of the device using the default web browser.
Identify Devices (Set:IdentifyDevice)	Allows you to choose/activate the built-in identification mode of the RDM device if available from the device. This usually means that the device will fully flash in white. [Keyboard shortcut: ***F7***]
Stop Identifying Devices (Set:IdentifyDevice)	Stops the identification mode. [Keyboard shortcut: ***Shift + F7***]
Capture Presets (Set:CapturePreset)...	Sends the RDM request ***Set:CapturePreset*** to the device. This parameter can only be set. Its status cannot be received and thus it cannot be shown in the overview. The device needs to support this parameter. Otherwise, the option is deactivated.

Reset Devices (Set:ResetDevice)...	Sends the RDM request ***Set:ResetDevice*** to the device. This parameter can only be set. Its status cannot be received and thus it cannot be shown in the overview. The device needs to support this parameter. Otherwise, the option is deactivated.
Delete	Removes the currently selected devices from the list and database. [Keyboard shortcut: ***Del***] A progression window will be shown if the process of deleting a large number of devices at once should take longer than 1 second.
Copy Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]
Copy Rows To Clipboard	Copies the currently selected row or rows [that is, all device information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]
Export List...	Saves the entire, currently shown list/view/table as a preformatted text file.

Search

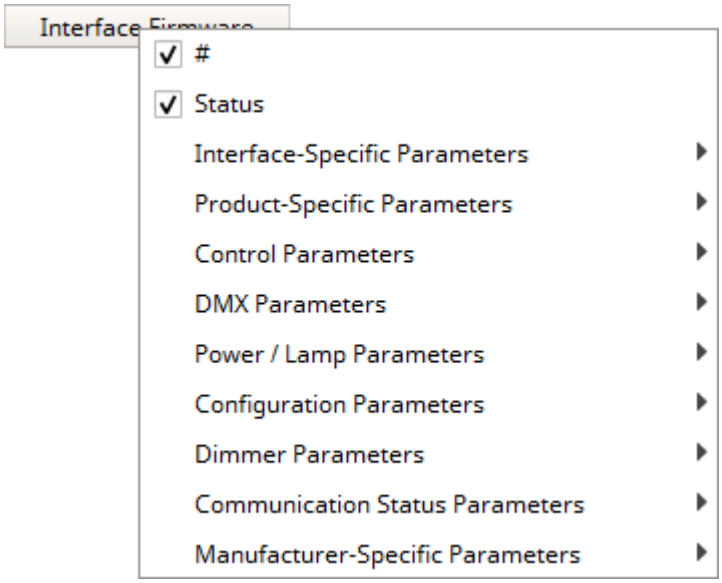


- ***Search -*** Enter any text in order to search all devices in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***Interf:MAD*** shows all lines where a MADRIX hardware interface is connected by referencing the column ***Interface Long Name/Interface Short Name***, for example. If no column is shown that includes 'Interf', MADRIX RADAR will search all shown columns for the specifically entered term.

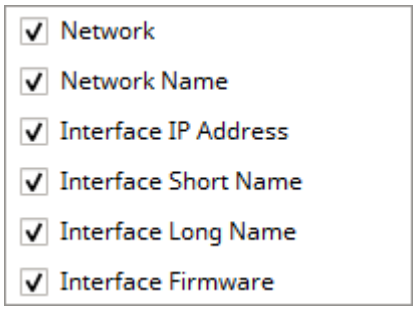
Customization

MADRIX RADAR allows you to choose which parameters are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.

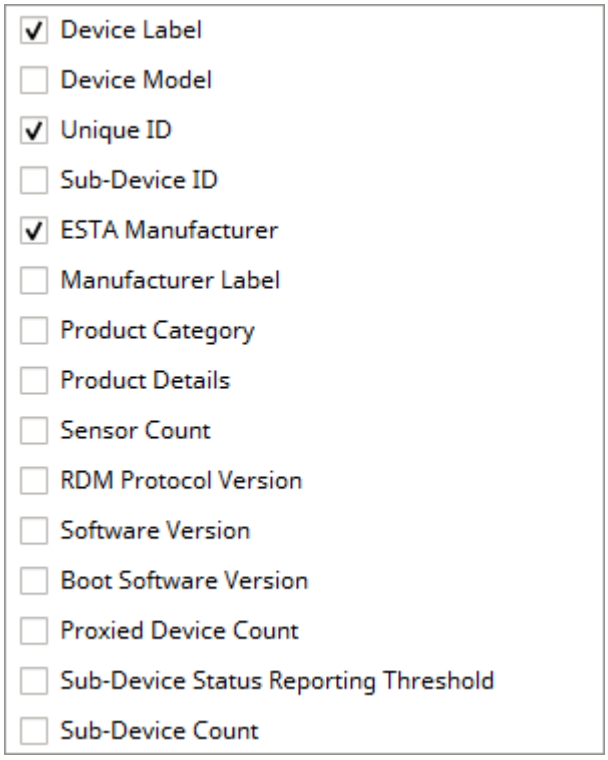


☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
#	Shows or hides the Index column.
Status	Shows or hides the Status column.
Interface-Specific Parameters	Shows or hides any parameters that are related to hardware interfaces.



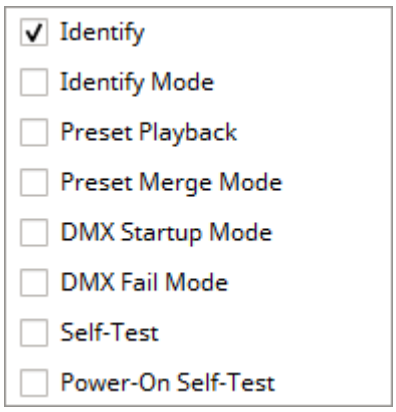
Product-Specific Parameters

Shows or hides any parameters that are related to the product.



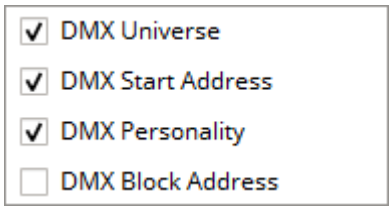
Control Parameters

Shows or hides any parameters that are related to controlling the RDM device.



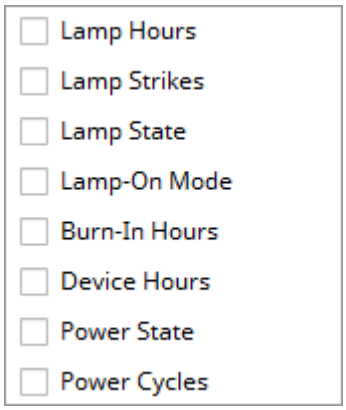
DMX Parameters

Shows or hides any parameters that are related to configuring the DMX512 settings of the device.



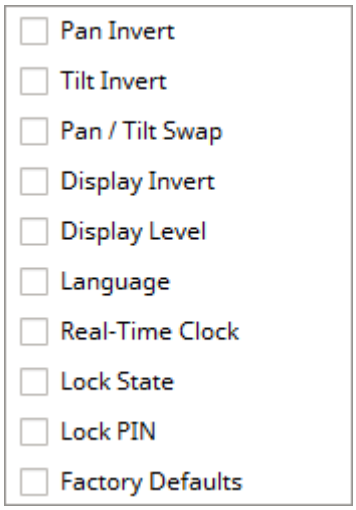
Power/Lamp Parameters

Shows or hides any parameters that are related to power/lamp settings.



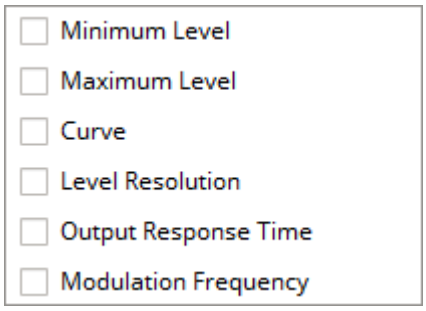
Configuration Parameters

Shows or hides any parameters that are related to the configuration of the RDM device.



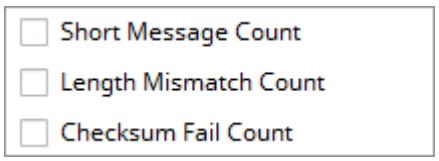
Dimmer Parameters

Shows or hides any parameters that are related to dimmer packs.



Communication Status Parameters

Shows or hides any parameters that are related to communication with RDM devices.



Manufacturer-Specific Parameters

Shows or hides any manufacturer-specific parameters.
Each unique manufacturer-specific parameters receives its own column. Manufacturer-specific parameters will only be grouped if all included parameters are or define the same.

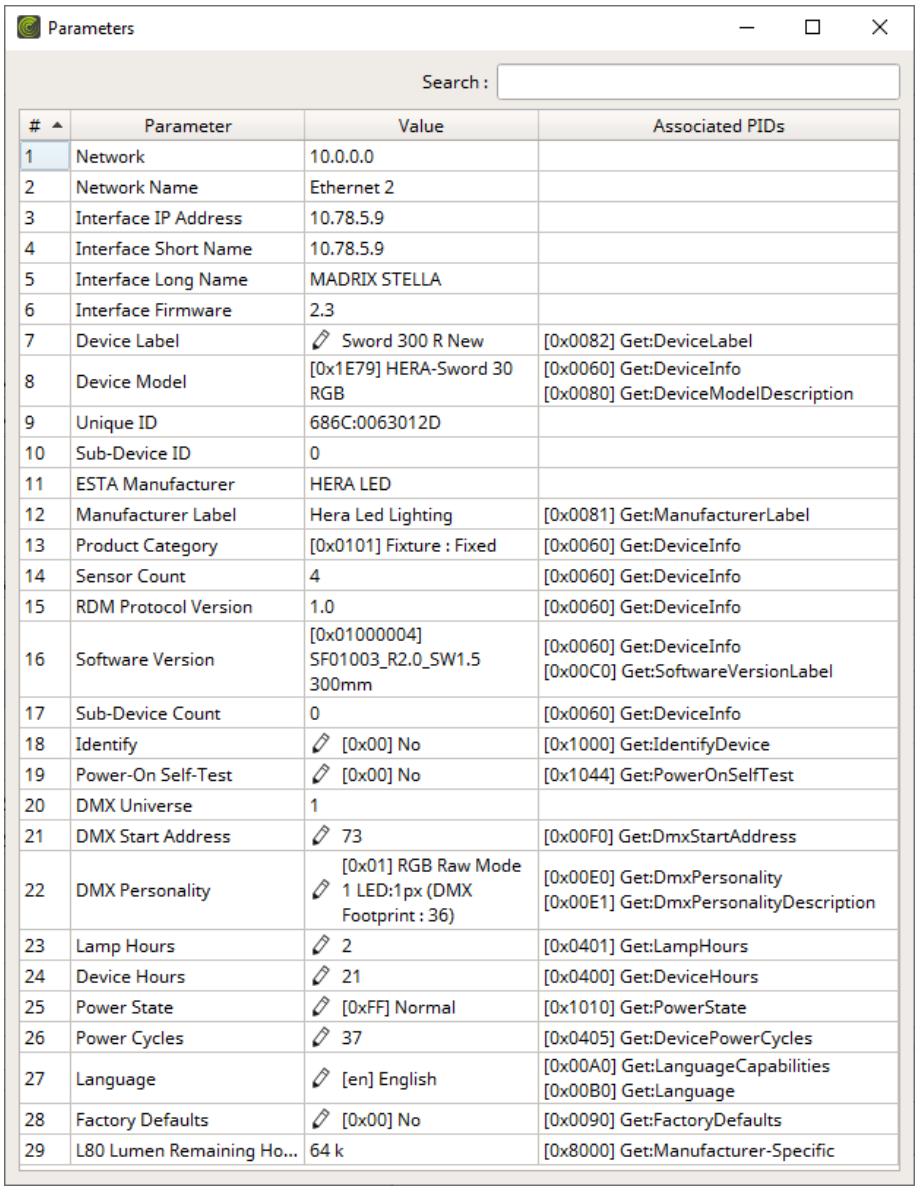
For example, if you wish to sort via Product Detail ID, make sure to activate column ***Product Detail*** and click on the corresponding header to sort in ascending or descending order.

6.3 Parameters

This topic includes:

Introduction

The Parameters view shows all RDM parameters [PIDs including fixed parameter IDs as well as manufacturer-specific IDs] that are supported by the currently selected device [or even currently selected devices].



#	Parameter	Value	Associated PIDs
1	Network	10.0.0.0	
2	Network Name	Ethernet 2	
3	Interface IP Address	10.78.5.9	
4	Interface Short Name	10.78.5.9	
5	Interface Long Name	MADRIX STELLA	
6	Interface Firmware	2.3	
7	Device Label	Sword 300 R New	[0x0082] Get:DeviceLabel
8	Device Model	[0x1E79] HERA-Sword 30 RGB	[0x0060] Get:DeviceInfo [0x0080] Get:DeviceModelDescription
9	Unique ID	686C:0063012D	
10	Sub-Device ID	0	
11	ESTA Manufacturer	HERA LED	
12	Manufacturer Label	Hera Led Lighting	[0x0081] Get:ManufacturerLabel
13	Product Category	[0x0101] Fixture : Fixed	[0x0060] Get:DeviceInfo
14	Sensor Count	4	[0x0060] Get:DeviceInfo
15	RDM Protocol Version	1.0	[0x0060] Get:DeviceInfo
16	Software Version	[0x01000004] SF01003_R2.0_SW1.5 300mm	[0x0060] Get:DeviceInfo [0x00C0] Get:SoftwareVersionLabel
17	Sub-Device Count	0	[0x0060] Get:DeviceInfo
18	Identify	[0x00] No	[0x1000] Get:IdentifyDevice
19	Power-On Self-Test	[0x00] No	[0x1044] Get:PowerOnSelfTest
20	DMX Universe	1	
21	DMX Start Address	73	[0x00F0] Get:DmxStartAddress
22	DMX Personality	[0x01] RGB Raw Mode 1 LED:1px (DMX Footprint : 36)	[0x00E0] Get:DmxPersonality [0x00E1] Get:DmxPersonalityDescription
23	Lamp Hours	2	[0x0401] Get:LampHours
24	Device Hours	21	[0x0400] Get:DeviceHours
25	Power State	[0xFF] Normal	[0x1010] Get:PowerState
26	Power Cycles	37	[0x0405] Get:DevicePowerCycles
27	Language	[en] English	[0x00A0] Get:LanguageCapabilities [0x00B0] Get:Language
28	Factory Defaults	[0x00] No	[0x0090] Get:FactoryDefaults
29	L80 Lumen Remaining Ho...	64 k	[0x8000] Get:Manufacturer-Specific

Overview

By default, the following information is provided since the following columns are enabled in the list:

#	Represents the parameter numbering as index and is especially useful for referencing parameters in the list.
Parameter	Shows each specific parameter that is supported.
Value	Shows the current value for each parameter.
Associated PIDs	Shows the specific PID or PIDs that are assigned to the parameter.

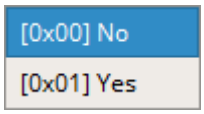
Editing And Changing Values

Overview

- In general, this overview shows information provided by the RDM device.
-  In specific cases, the edit icon [that is, a pen] shows that the respective information can be edited by you.

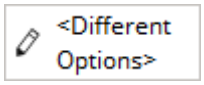
Editing

- ***Left Mouse Double-Click -*** Perform a double-click with your left mouse button on a value in order to edit it.
  - Keyboard shortcut: F2
  - Confirm with ***Enter*** [or click outside of the currently active cell with the mouse]. Abort any changes with ***Escape***.



You may be presented with different choices for the specific parameter.
In this example, 0x00 or 0x01 is the value that will be sent over RDM.

You may be able to directly enter numbers or text as input.



When having selected several devices in the ***Devices*** view and their parameters have different values, the software will display this accordingly.

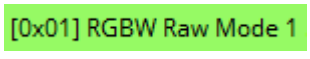
When changing a value, the change will be made for all selected RDM devices that support this parameter.

Valid Values And Limits

The valid values for each parameter are defined by the RDM device and its set of features [such as DMX Personality], the RDM standard [such as Identify], or a different standard [such as DMX Start Address for DMX512].

Visual Feedback For Edits

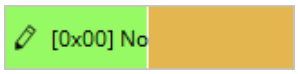
The software will show you if any changes you have made are set successfully or not. This status is shown for a couple of seconds after each change.



Green - The RDM device reported back that the changes were successfully set.

Yellow - The request is currently pending.

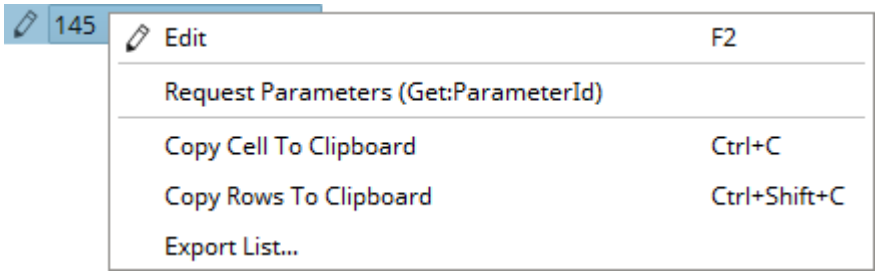
Red - The RDM device could not successfully set the new value or the request timed out. Learn more »**Missing Responses From RDM Devices**



If you are editing several devices, the list cell can split in the according number of selected devices and show each status individually.

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on a device.



Edit	Allows you to change the entry [if it can be edited]. [Keyboard shortcut: ***F2***]
Request Parameters (Get:ParameterId)	Sends a new request to the device in order to obtain the latest parameter values, which includes all personalities and their corresponding descriptions. [Corresponds to the Get-command of the specific PID if available.]
Copy Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]
Copy Rows To Clipboard	Copies the currently selected row or rows [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]
Export List...	Saves the entire, currently shown list/view/table as a preformatted text file.

Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***val:MAD*** shows all lines where MADRIX might be included in a product description for example by referencing the column ***Value***, for example.

Options

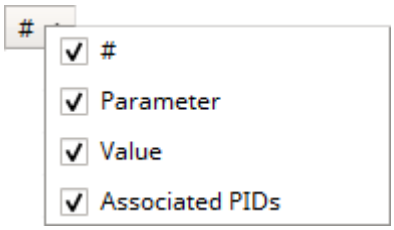
You can set up specific settings for Parameters in the Options.

Learn more »Timing

Customization

MADRIX RADAR allows you to choose which columns are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.



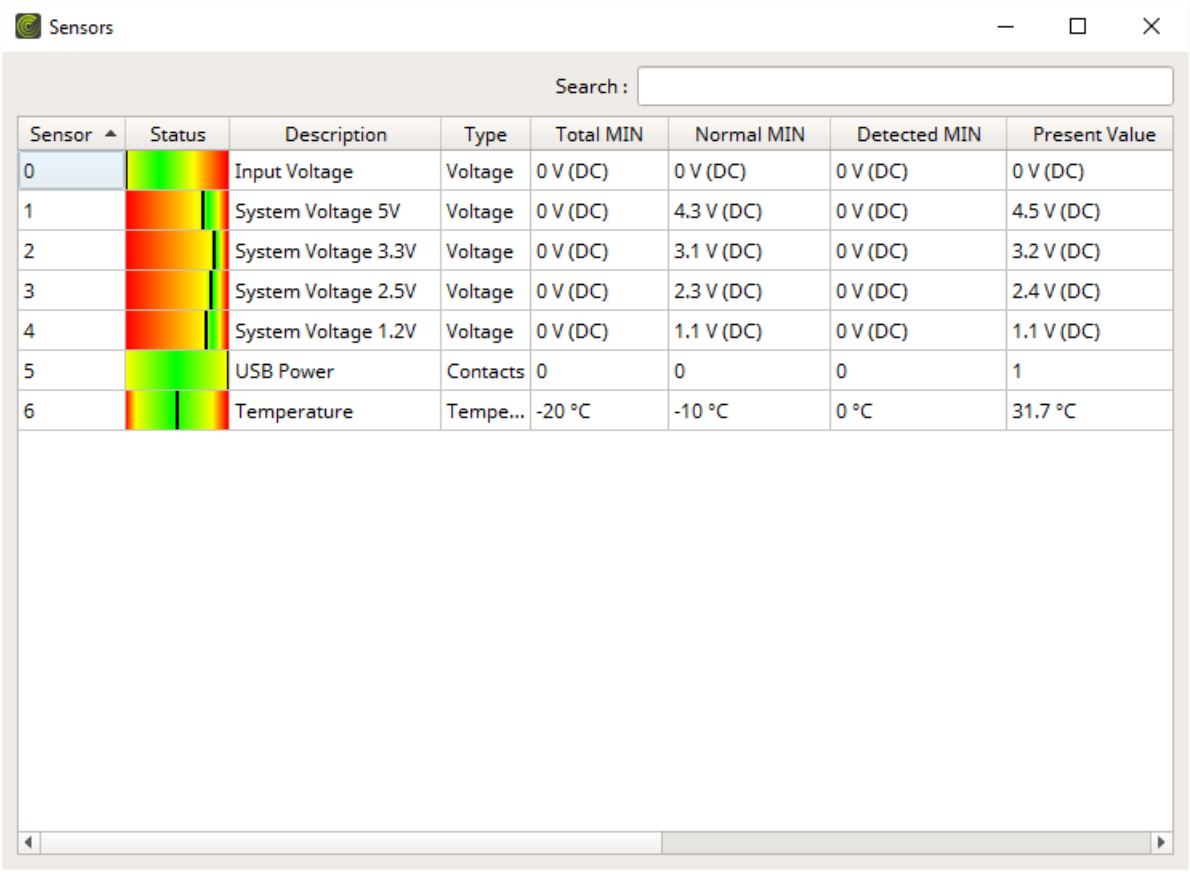
☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
#	Shows or hides the Index column.
Parameter	Shows or hides the Parameter column.
Value	Shows or hides the Value column.
Associated PIDs	Shows or hides the Associated PIDs column.

6.4 Sensors

This topic includes:

Introduction

The Sensors view shows all sensors that are available for the currently selected device or even currently selected devices.



Overview

By default, the following information is provided since the following columns are enabled in the list:

Sensor Represents the sensor numbering and is especially useful for referencing sensors in the list. [As defined by the RDM standard, these start with the index 0.]
When having selected multiple devices, you may see that sensors have the same index

number. This is implemented intentionally in this way to be able to compare [the same] sensors of different devices.

Status Shows a helpful graphical representation of the sensor value. This includes:
- Current value [***black*** line],
- Sensor optimal values [***green***],
- Sensor tolerated values [***yellow*** to ***orange***],
- Sensor minimum and maximum [***red***].

See also **Visual Feedback**

Description Shows the name of the sensor [as reported by the device].

Type Shows the type of the sensor [as reported by the device].

Total MIN Shows the absolute minimum value the sensor can read and report [as defined by the sensor/manufacturer].

Normal MIN Shows the minimum sensor value, which is the lowest acceptable value for the device for normal operation.

Detected MIN Shows the lowest sensor value that has been reported by the device. Please note that it depends on how the manufacturer has implemented this feature. The manufacturer decides what is being read and what is being reported and when. [The device needs to support the Recorded Value functionality as indicated by Recording Support.]

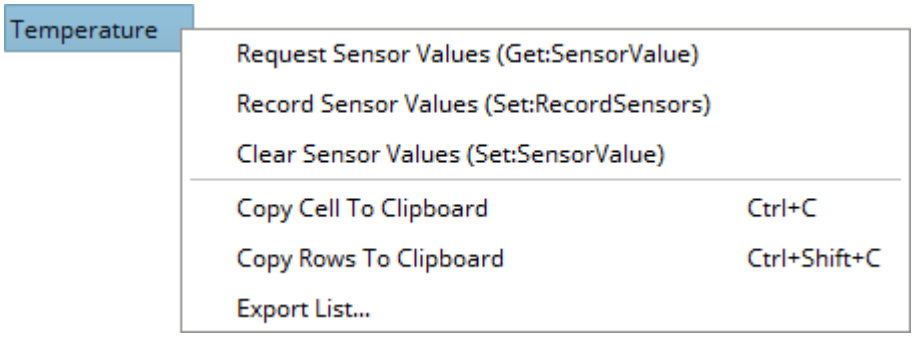
Present Value Shows the current value of the sensor.

Detected MAX Shows the highest sensor value that has been reported by the device. Please note that it depends on how the manufacturer has implemented this feature. The manufacturer decides what is being read and what is being reported and when. [The device needs to support the Recorded Value functionality as indicated by Recording Support.]

Normal MAX	Shows the maximum sensor value, which is the highest acceptable value for the device for normal operation.
Total MAX	Shows the absolute maximum value the sensor can read and report [as defined by the sensor/manufacturer].
Recorded Value	Shows the currently recorded value [as reported by the device].
Recording Support	Shows if the device supports this functionality. Devices can either support recording the current sensor value, detect and store minimum and maximum values, both recording and detecting, or none.

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Request Sensor Values (Get:SensorValue)	Requests up-to-date status information for the selected sensor.

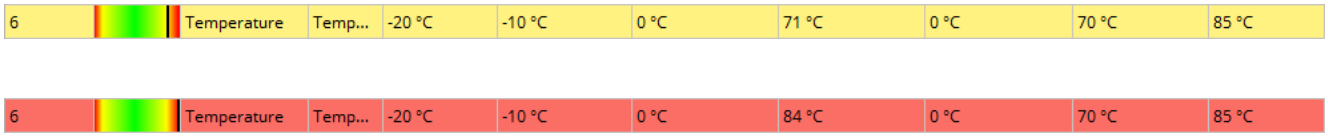
Record Sensor Values (Set:RecordSensors)	Sends the RDM request ***Set:RecordSensors*** to the device in order to store the value in the device and request it via Get:SensorValue. This parameter can only be set. Its status cannot be received and thus it cannot be shown in the overview. This will record the current sensor value in the RDM device itself.
Clear Sensor Values (Set:SensorValue)	Sends the RDM request ***Set:SensorValue*** to the device. This resets the sensor. This parameter can only be set. Its status cannot be received and thus it cannot be shown in the overview.
Copy Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]
Copy Rows To Clipboard	Copies the currently selected row or rows [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]
Export List...	Saves the entire, currently shown list/view/table as a preformatted text file.

Visual Feedback

The software will show you if sensors have reported serious or critical values.
If values are out of the optimal range, the entire row will be shown in the same color as would the status indicate:

- Sensor tolerated values [***yellow*** to ***orange***]
- Sensor minimum and maximum [***red***]

No visual changes are made to the row if values are within optimal range.



Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***Sen:Temp*** shows all lines where a temperature sensor is connected by referencing the column ***Sensor***, for example.

Options

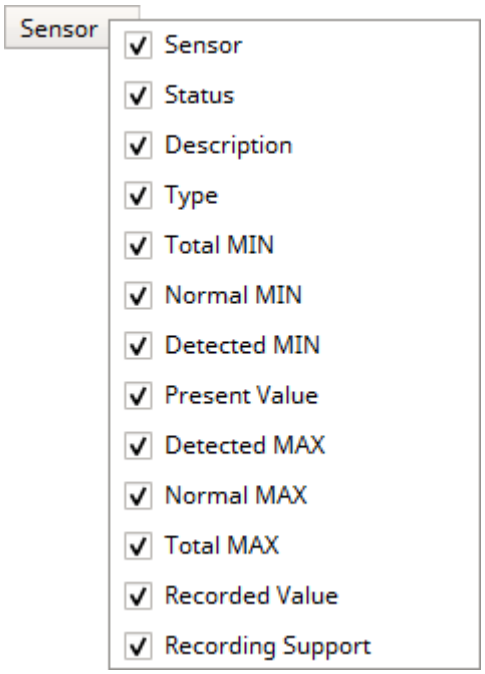
You can set up specific settings for Sensors in the Options.

Learn more »Timing

Customization

MADRIX RADAR allows you to choose which columns are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.



☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
Sensor	Shows or hides the Sensor column.
Status	Shows or hides the Status column.
Description	Shows or hides the Description column.
Type	Shows or hides the Type column.

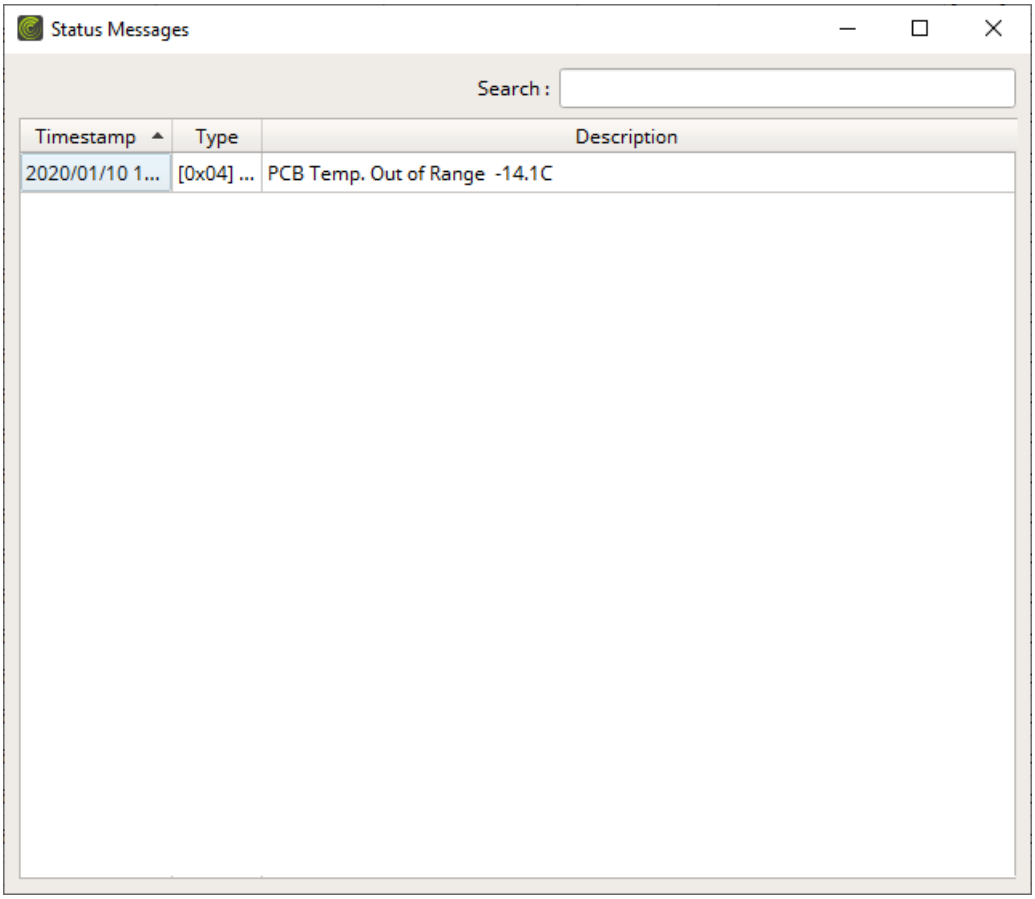
Total MIN	Shows or hides the Total MIN column.
Normal MIN	Shows or hides the Normal MIN column.
Detected MIN	Shows or hides the Detected MIN column.
Present Value	Shows or hides the Present Value column.
Detected MAX	Shows or hides the Detected MAX column.
Normal MAX	Shows or hides the Normal MAX column.
Total MAX	Shows or hides the Total MAX column.
Recorded Value	Shows or hides the Recorded Value column.
Recording Support	Shows or hides the Recording Support column.

6.5 Status Messages

This topic includes:

Introduction

RDM devices may report back specific occurrences on their own [as supported by the RDM device and as defined by the manufacturer]. As such, you could say that they can have their own log implemented.
The Status Messages view shows all received status messages for the currently selected device.



Overview

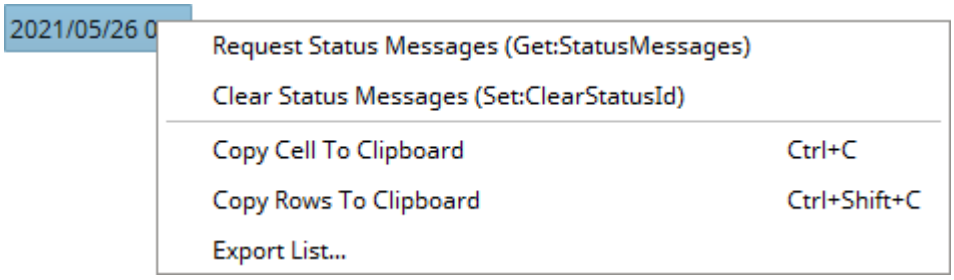
By default, the following information is provided since the following columns are enabled in the list:

Timestamp Shows the local time when the status message has been requested. [YYYY/MM/DD HH:MM:SS]

Type	Shows the type of message [as defined by the RDM standard].
Description	Shows a more in-depth explanation of the message including values [as reported by the device].

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Request Status Messages (Get:StatusMessages)	Requests up-to-date status messages.
Clear Status Messages (Set:ClearStatusId)	Sends the RDM request ***Set:StatusMessages*** to the device. This clears all status messages on the device. This parameter can only be set. Its status cannot be received and thus it cannot be shown in the overview.
Copy Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]

Copy Rows To Clipboard	Copies the currently selected row or rows [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]
Export List...	Saves the entire, currently shown list/view/table as a preformatted text file.

Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***Desc:Vol*** shows all lines that include voltage status information by referencing the column ***Description***, for example.

Options

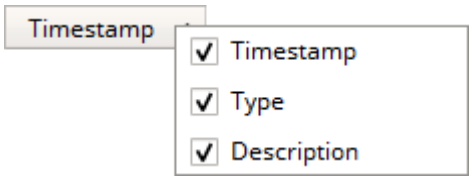
You can set up specific settings for Status Messages in the Options.

Learn more »Timing

Customization

MADRIX RADAR allows you to choose which columns are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.



☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
Timestamp	Shows or hides the Timestamp column.
Type	Shows or hides the Type column.
Description	Shows or hides the Description column.

6.6 Slots

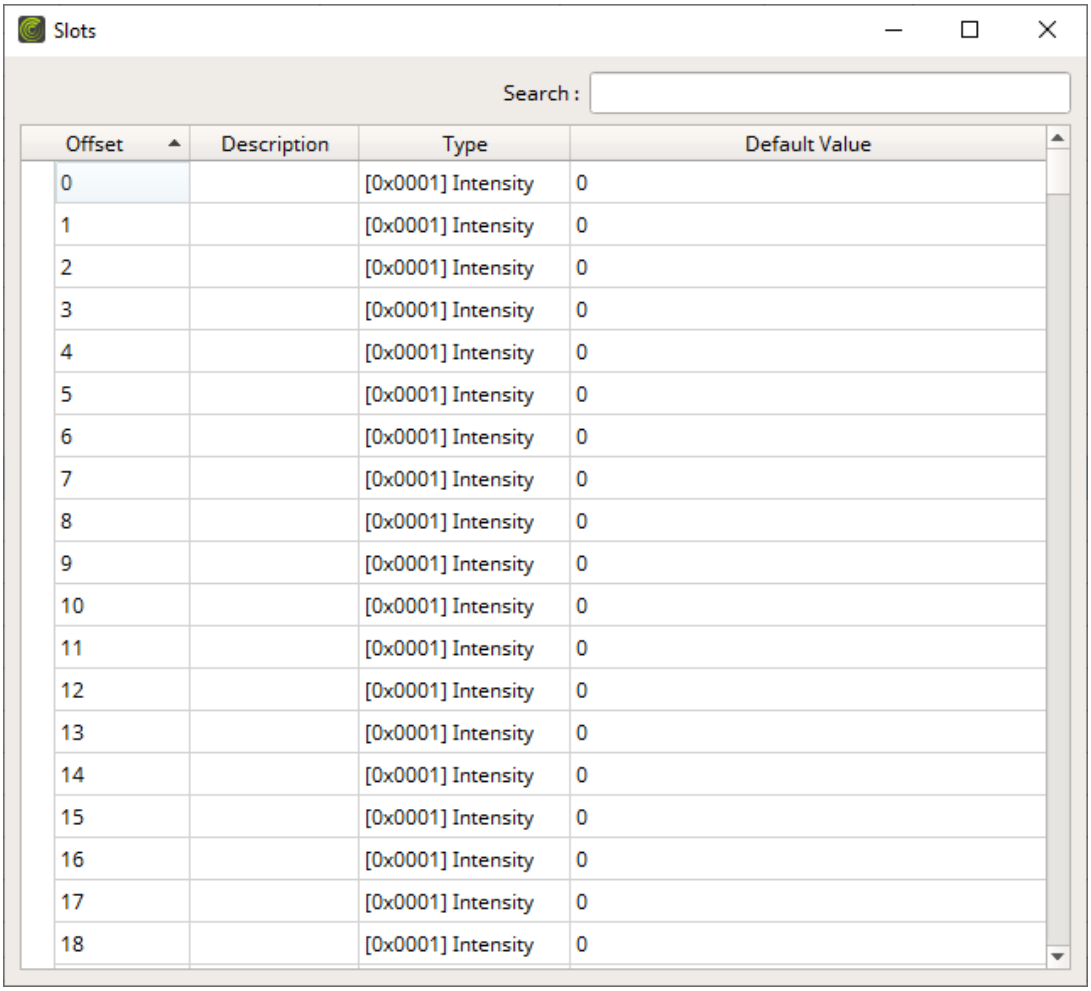
This topic includes:

Introduction

The Slots view shows all reported slots for the currently selected device.

Since this is specific to a device [as defined and implemented by the manufacturer], no information can be edited.

Usually and if available, slots represent the DMX personality of a device, that is which functionality is assigned to which channel [for example, Master Dimmer, Red Channel, Green Channel, Blue Channel, White Channel, Intensity, etc.].



Overview

By default, the following information is provided since the following columns are enabled in the list:

Use the arrows in order to show these slots by expanding the view [or collapsing it back].

Offset Represents the channel number of the device. It also shows primary and secondary slots. Secondary slots specify primary slots more precisely. [As defined by the RDM standard, these start with the index 0.]

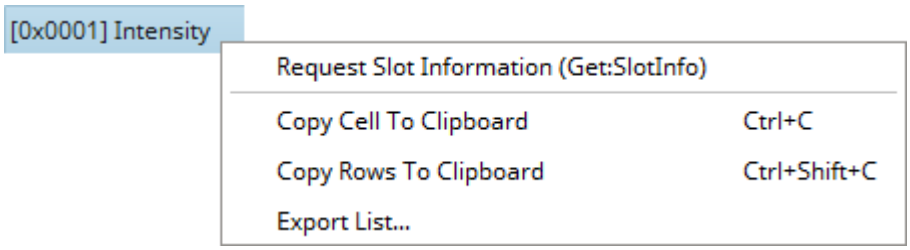
Description Shows a more in-depth explanation of the slot [as reported by the device].

Type Shows the type of the slot [as reported by the device].

Default Value Shows the default value of the slot [as reported by the device].

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Request Slot Information (Get:SlotInfo) Sends a request to the device in order to manually update the provided slot information.

Copy Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]
Copy Rows To Clipboard	Copies the currently selected line or lines [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]
Export List...	Saves the entire, currently shown list/view/table as a preformatted text file.

Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***Desc:Int*** shows all lines that include intensity slots by referencing the column ***Description***, for example.

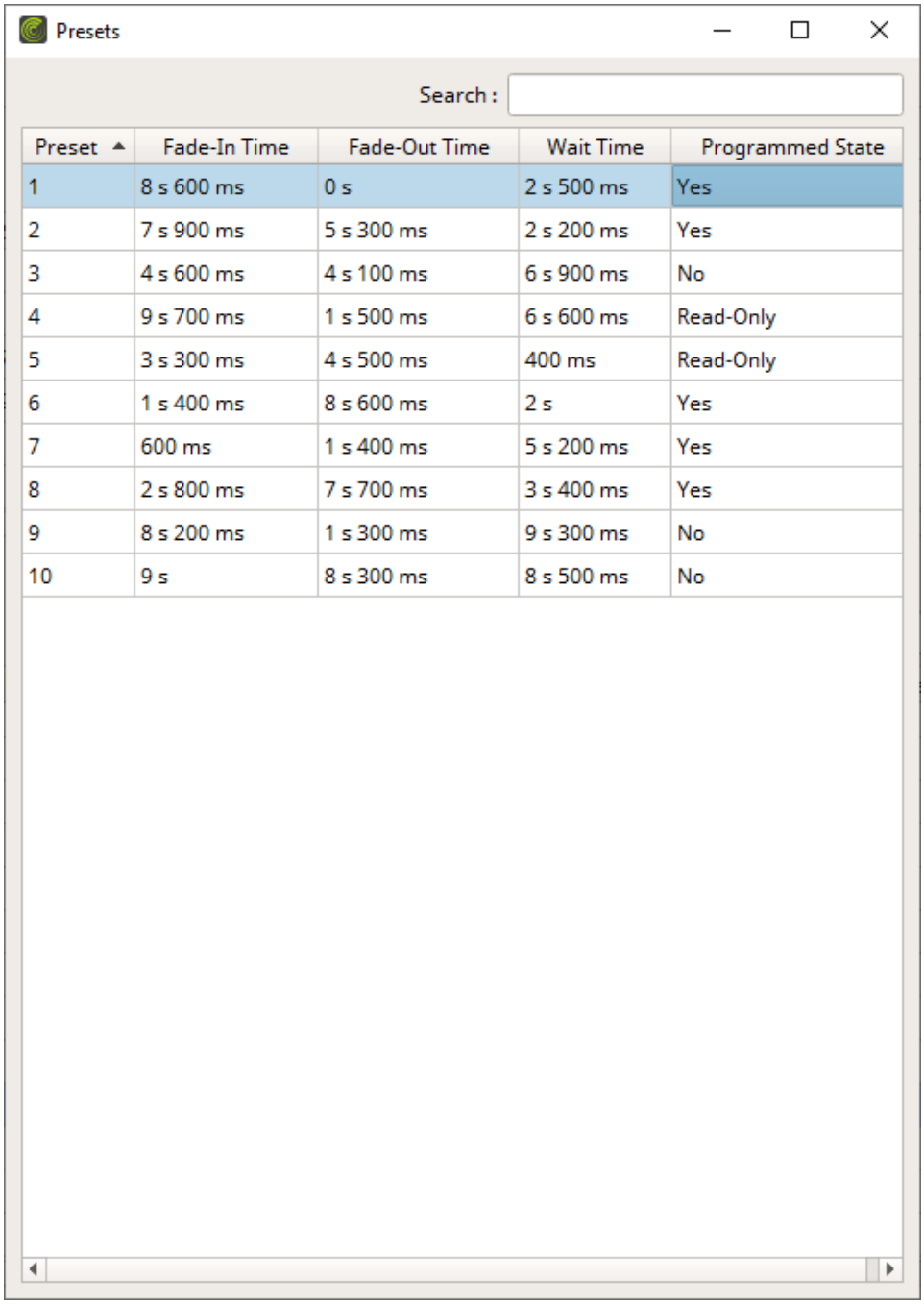
6.7 Presets

This topic includes:

Introduction

RDM devices may include specific scenes. As such, you could say that they can have their own log implemented.

The Presets view shows all received scenes for the currently selected devices.



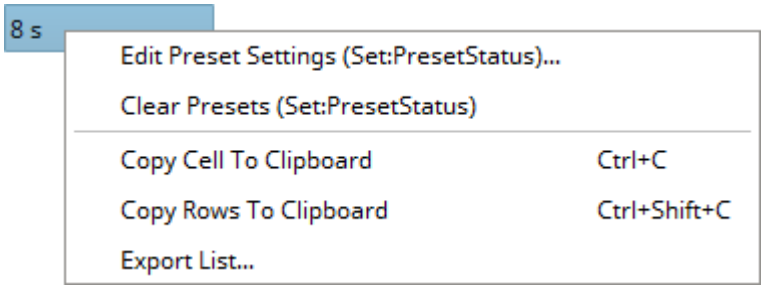
Overview

By default, the following information is provided since the following columns are enabled in the list:

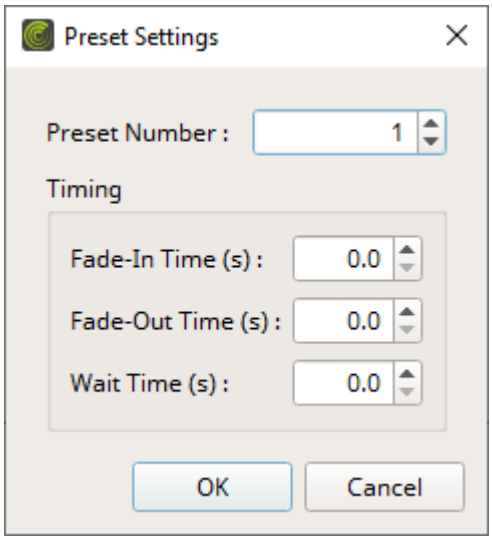
Preset	Shows the scene number that the device has stored [as reported by the device].
Fade-In Time	Shows the defined fade-in time for the current scene.
Fade-Out Time	Shows the defined down fade for the previous scene or active look.
Wait Time	Shows the defined time the device remains at the current scene before playing the next scene.
Programmed State	Shows if a preset scene is not programmed [0], if it is programmed [1], or if it can only be read since it was programmed by the manufacturer.

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Edit Preset Settings (Set:PresetStatus)...	Opens a new window to modify a preset.



Preset Number - Defines the scene number.

Fade-In Time (s) - Defines the fade-in time [in seconds].

Fade-Out Time (s) - Defines the down fade [in seconds].

Wait Time (s) - Defines the wait time [in seconds].

Confirm with ***OK***. Or abort the process via ***Cancel***.

Clear Presets (Set:PresetStatus) Removes the currently selected presets.

Copy Cell To Clipboard Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]

Copy Rows To Clipboard Copies the currently selected line or lines [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]

Export List... Saves the entire, currently shown list/view/table as a preformatted text file.

Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***Desc:Vol*** shows all lines that include voltage status information by referencing the column ***Description***, for example.

Options

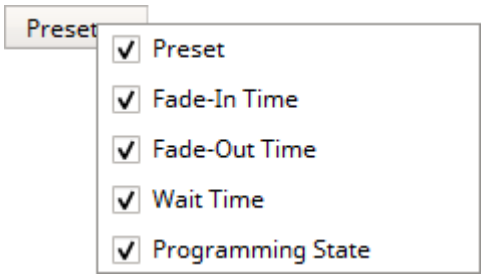
You can set up specific settings for Scenes in the Options.

Learn more »**RDM**

Customization

MADRIX RADAR allows you to choose which columns are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.



☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
Preset	Shows or hides the Preset column.
Fade-In Time	Shows or hides the Fade-In Time column.
Fade-Out Time	Shows or hides the Fade-Out Time column.
Wait Time	Shows or hides the Wait Time column.
Programming State	Shows or hides the Programming State column.

6.8 Events

This topic includes:

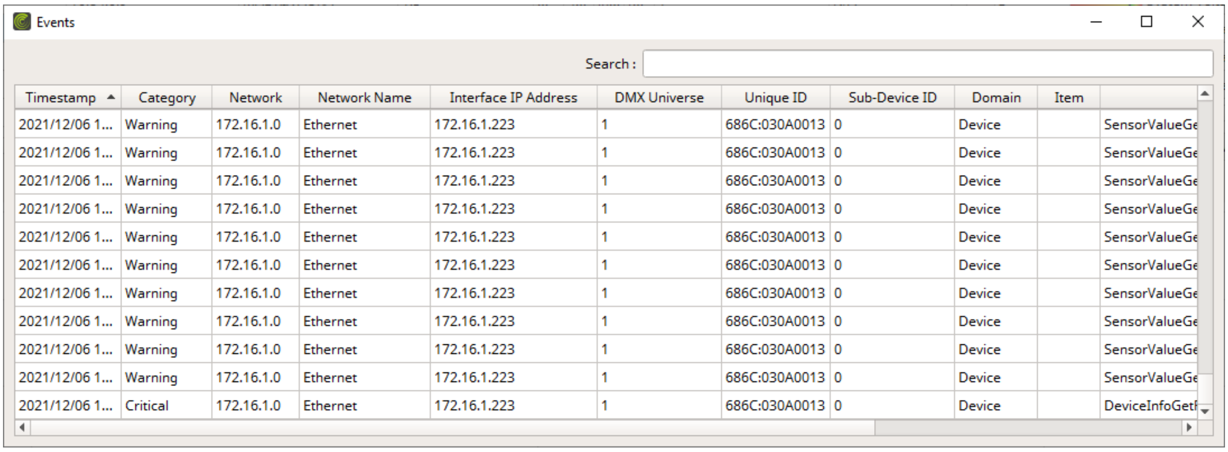
Introduction

MADRIX RADAR sends and receives requests from connected RDM devices, which include valuable information, such as sensor values.

In addition to merely requesting and receiving information, MADRIX RADAR will apply its own logic in order to create events for you. By checking and validating incoming data, MADRIX RADAR provides actionable reports for you.
This functionality is not part of the RDM specification and provides great additional value when using MADRIX RADAR. As such, it is an important tool for monitoring and supervising the project.

You can choose to show events only in the software itself, or set up custom notifications according to your requirements [see the next chapter].
The Events view shows all occurred events from all RDM devices.

In general, please allow for several minutes of time to pass before events are registered and shown.



Timestamp	Category	Network	Network Name	Interface IP Address	DMX Universe	Unique ID	Sub-Device ID	Domain	Item	
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Warning	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		SensorValueGe
2021/12/06 1...	Critical	172.16.1.0	Ethernet	172.16.1.223	1	686C:030A0013	0	Device		DeviceInfoGetf

Overview

By default, the following information is provided since the following columns are enabled in the list:

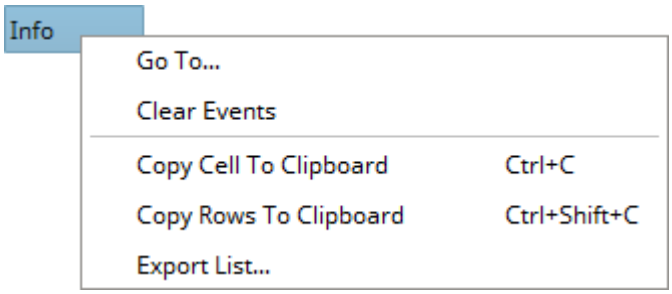
Timestamp	Shows the local time when the event occurred. [YYYY/MM/DD HH:MM:SS]
Category	Shows the kind of event [including ***Info***, ***Warning***, ***Critical***, ***Fatal***].
Network	Shows the network IP address of the network adapter, to which the interface is connected. [TCP/IPv4] [This information refers to »**Art-Net**.]
Network Name	Shows the name of the network adapter.
Interface IP Address	Shows the IP address of the hardware interface to which the RDM device is connected. [This information refers to »**Art-Net**.]
Unique ID	Is also shown in the Devices view. Represents a unique identifier of the RDM device. It is shown as HEX [without 0x] and using a colon [:] as separator. The first part is the ESTA ID of the manufacturer and the second part is a number, which can be freely defined by the manufacturer.
Sub-Device ID	Shows a value of ***0*** if the device is a so-called root device. For all others, the sub-device ID for devices that have one is shown.
DMX Universe	Shows the currently assigned DMX universe for the RDM device. [Learn more »**Glossary**]
Domain	Shows to which type entry is assigned to, such as Devices.
Item	Shows a specific reference of where the event occurred if available. Such reference could be ***Curve***, ***DMX Personality***, ***Language Capability***, ***Lock State***, ***Modulation Setting***, ***Parameter***, ***Output Response Time***, ***Preset***, ***Self-Test***, ***Sensor***, or ***Slot*** [and includes the corresponding item number].
Label	Shows the quick identifier of the specific event.

Description	Shows an in-depth explanation of the event for your information and as basis to act upon.

- All events will be logged.
- Events are stored temporarily. They are shown until the software is closed.
- In addition, events referring to history data will be stored persistently in the database and shown in the History View [Sensor Value Events].
- A maximum of 1,000 entries can be shown.

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Go To...	Focuses on the corresponding device in the ***Devices*** view, the corresponding interface in the ***Interfaces*** view, and also shows the event in the ***History*** view if recorded data is available.
Clear Events	Removes all logged items from the list.

Copy Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]
Copy Rows To Clipboard	Copies the currently selected line or lines [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]
Export List...	Saves the entire, currently shown list/view/table as a preformatted text file.

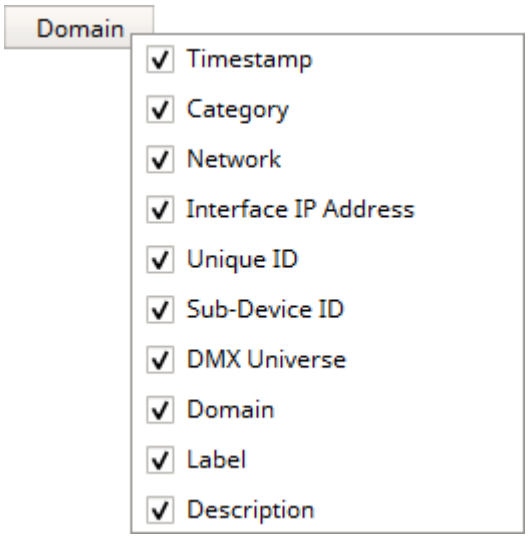
Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***Desc:Vol*** shows all lines that include voltage status information by referencing the column ***Description***, for example.

Customization

MADRIX RADAR allows you to choose which columns are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.



☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
Timestamp	Shows or hides the Timestamp column.
Category	Shows or hides the Category column.
Network	Shows or hides the Network column.
Interface IP Address	Shows or hides the Interface IP Address column.
Unique ID	Shows or hides the Unique ID column.
Sub-Device Id	Shows or hides the Sub-Device ID column.
DMX Universe	Shows or hides the DMX Universe column.
Domain	Shows or hides the Domain column.

Label	Shows or hides the Label column.
Description	Shows or hides the Description column.

Event Configuration

You can customize and set up if and how you would like to be notified in case of reported events.

Continue with »Event Notifications

6.9 Event Notifications

This topic includes:

Introduction

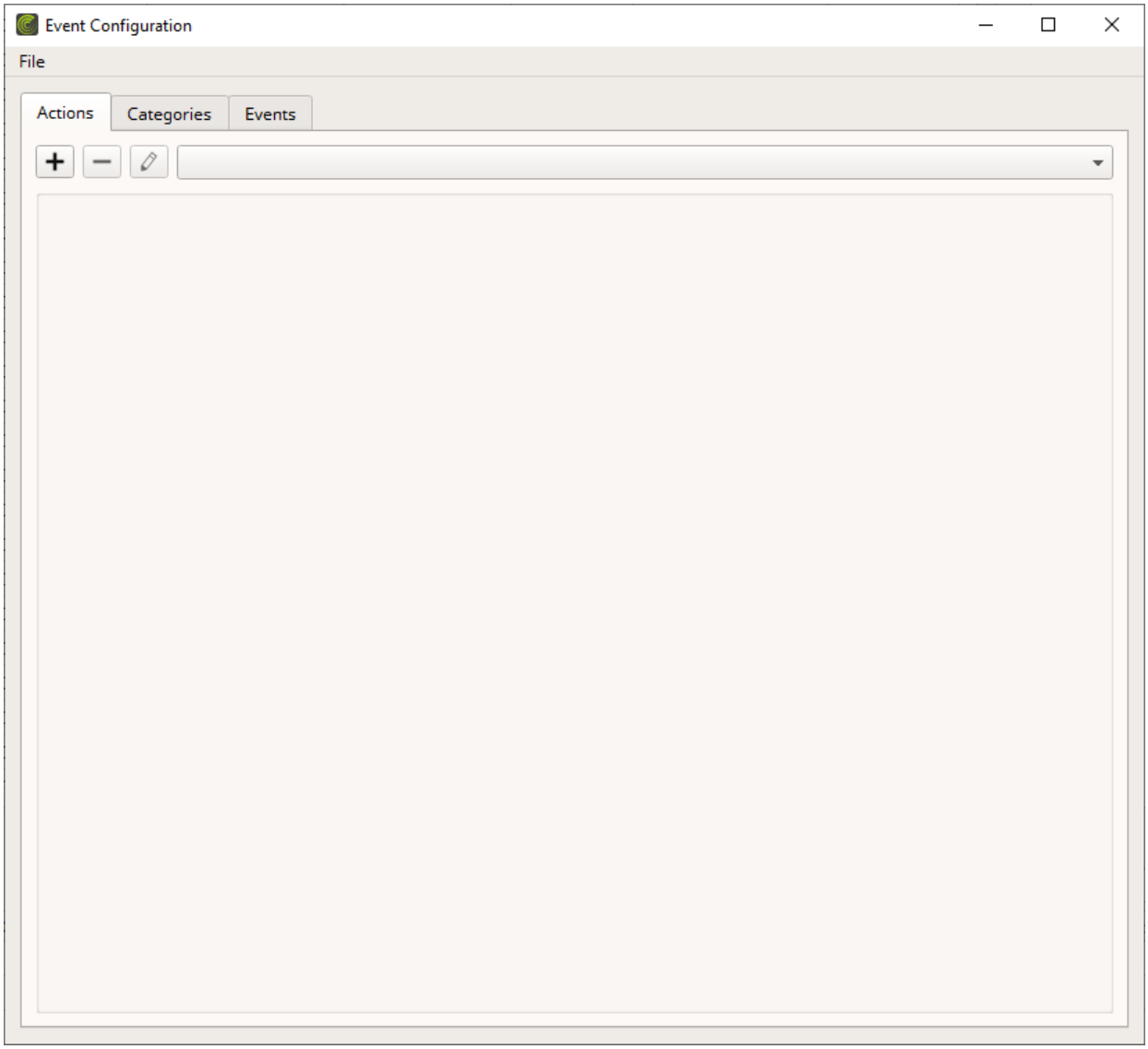
In addition to the regular Event view, you can customize and set up if and how you would like to be notified in case of events.
When an event occurs, it is categorized, which in turn triggers the assigned actions.
[Alternatively, you can choose to leave the useful defaults as provided.]

By default, all events are shown in the ***Events*** view [except for category Validation].

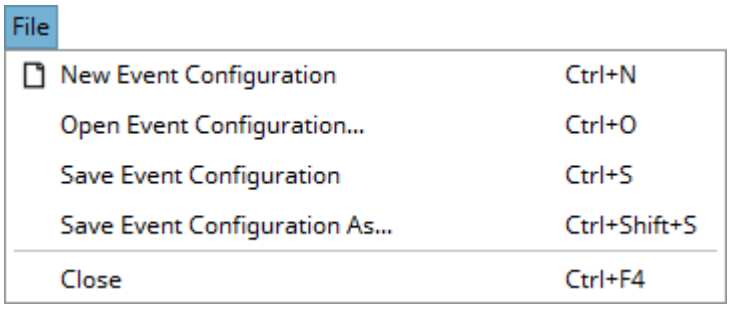
First, learn more about »**Events**

Event Configuration

- Go to the menu ***Preferences > Event Configuration...***
  [Keyboard shortcut: ***Ctrl + Alt + E***]


Event Configuration
File
Actions
Categories
Events

Menu



- ***New Event Configuration -*** Resets any configuration of Actions, Categories, or Events that may have taken place and restores the default settings. All custom actions will be deleted and the event and category mappings will be reset.
  [Keyboard shortcut: ***Ctrl + N***]
- ***Open Event Configuration... -*** Loads a previously saved Event Configuration file [of the file type *.revcx].
  [Keyboard shortcut: ***Ctrl + O***]
- ***Save Event Configuration -*** Stores an Event Configuration in an external file [of the file type *.revcx] in order to preserve it.
  - Sensible information [such as, user name, password, and command line commands] will be saved and encrypted with the Advanced Encryption Standard AES 256.
  [Keyboard shortcut: ***Ctrl + S***]
- ***Save Event Configuration As... -*** Stores the Event Configuration as a separate, duplicate file. And allows you to choose a different name.
  - Sensible information [such as, user name, password, and command line commands] will be saved and encrypted with the Advanced Encryption Standard AES 256.
  [Keyboard shortcut: ***Ctrl + Shift + S***]

- ***Close -*** Closes the Event Configuration window.
  [Keyboard shortcut: ***Ctrl + F4***]

Actions

Overview

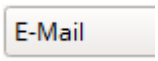
Actions allow you to define the kind of notification or action that should be triggered when an event occurred.

By default, events are always shown in the ***Events*** view [except category Validation].. Learn more »Events

Add Action - Creates a new action.

Remove Action - Removes the currently selected action. [Select an action via the selection field to the right. See Select Action below.]

Edit Action Label - Allows you to change the name of the action.

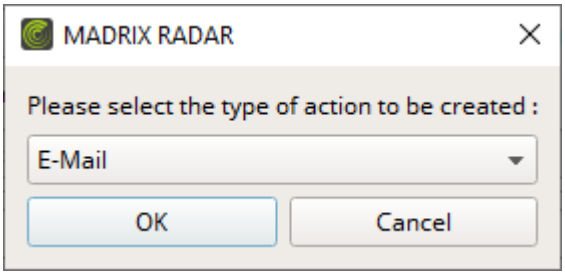


Select Action - Allows you to choose which action configuration you would like to see or edit.

Adding Actions

1] Click **+** to create a new action.

2] Choose which type of notification. Choose from ***E-Mail*** or ***Shell Script***.

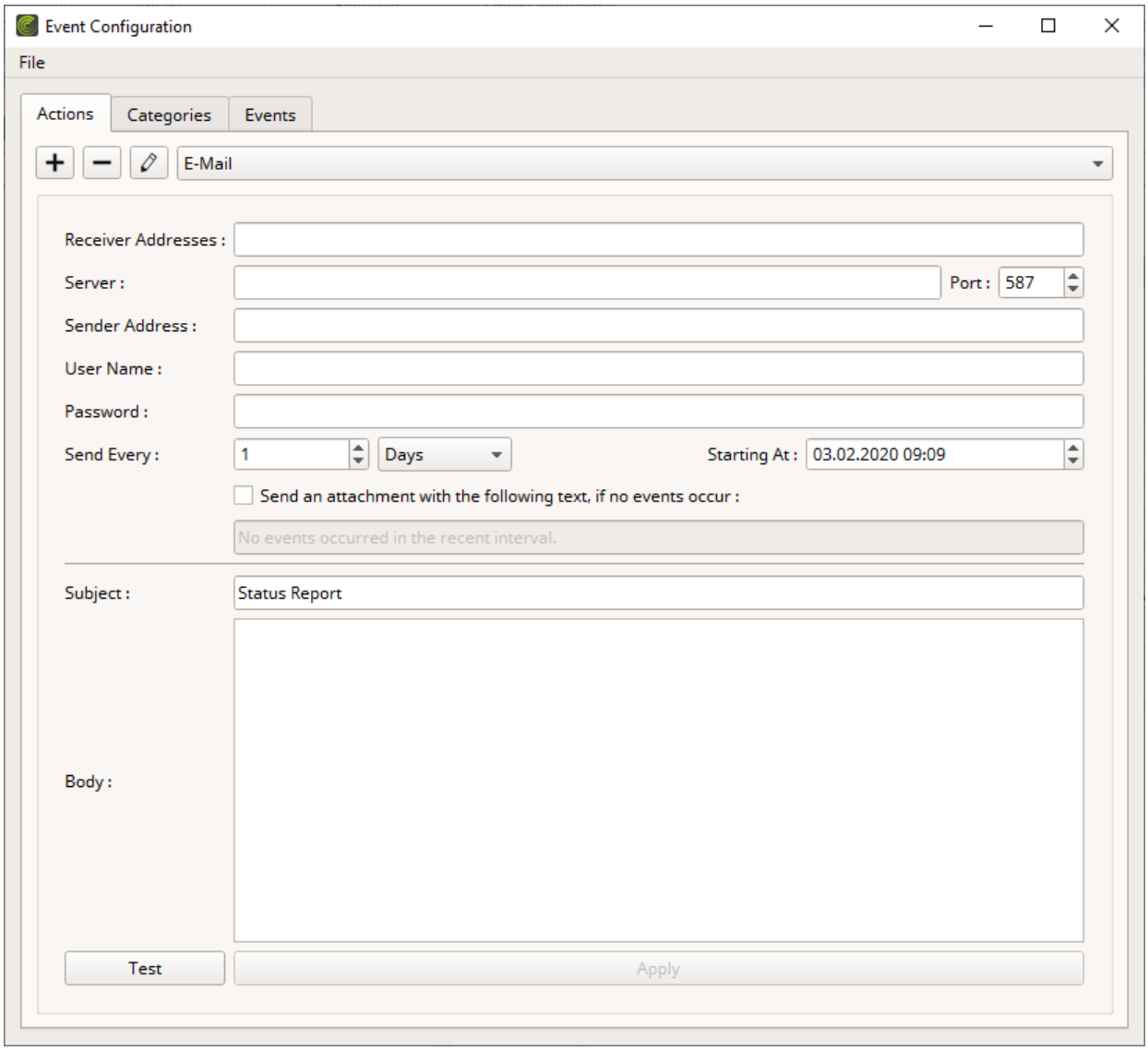


3] Configure the notification as shown below.

E-Mail Notifications

Allows you to let the software periodically send e-mail notifications to you automatically.
A message includes a text file [of the file type *.txt] in the attachment which contains all events that occurred.

You can choose to have messages sent only in case events were reported or always; even if no events occurred.
Configure all settings as described below.



- ***Receiver Address -*** Enter the e-mail address or address to which send the automatic reports [for example, receiver@company.com].
  - Enter one e-mail address or enter several addresses and separate them via spaces [ ], commas [,], or semicolons [;].
- ***Server -*** Enter the e-mail server's address from which e-mails are sent [for example, mail.company.com].
  - ***Port -*** Enter the communication port that is used by your e-mail server.
  [Any input will be saved and encrypted with the Advanced Encryption Standard AES 256.]
- ***Sender Address -*** Enter the e-mail address from which e-mails are sent [for example, maintenance@company.com]
  [Any input will be saved and encrypted with the Advanced Encryption Standard AES 256.]
- ***User Name -*** Enter the name that is used to establish the connection to the e-mail server.
  [Any input will be saved and encrypted with the Advanced Encryption Standard AES 256.]
- ***Password -*** Enter the password that corresponds with the user name. Any input will be hidden.
  [Any input will be saved and encrypted with the Advanced Encryption Standard AES 256.]
- ***Send Every -*** Defines how often e-mail messages are sent. Enter any ***number*** and choose the ***time interval***.
  - Valid values range from 1 minute to 12 months. The default value is 1 day.
  - ***Starting At -*** Allows you to define the start date, when the software begins sending messages. Set up the ***date*** and ***time*** accordingly.
  - If the date is set to a past point in time, one message will be sent retroactively.
- ***Send an attachment with the following text, if no events occur -*** If enabled, allows you to receive messages even if no particular event has occurred.
  - ***Enter any text*** in the input field. [By default, it includes ***No events occurred in the recent interval.***]
- ***Subject -*** Enter the subject line of e-mails. [By default, it includes ***Status Report***]
- ***Body -*** Allows you to enter any additional text in addition to the automatically generated header and footer created by the software.
- ***Test -*** Directly tries to send an e-mail [with the current settings] in order to test the functionality and server settings [without having to wait until an event occurs].

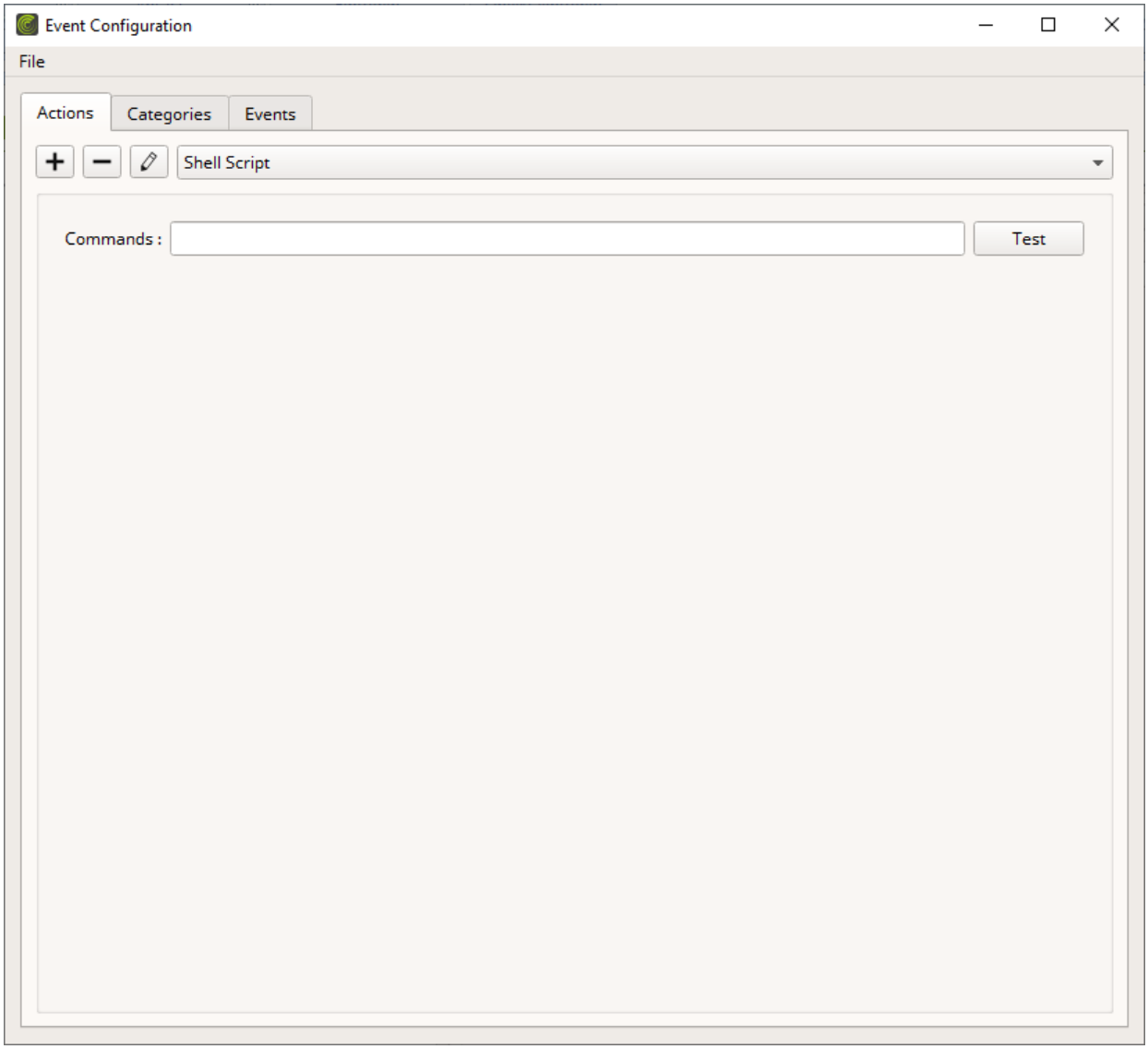
- Make sure to confirm any changes with ***Apply***.

Shell Script Notifications

Overview

Allows you to execute commands in the ***PowerShell***.
PowerShell is an integral tool of the Windows operating system for advanced scripting. It is already installed and available with Windows 10.

Configure all settings as described below.



- ***Commands -*** Enter the command which you would like to execute.
  - See below for examples.
- ***Test -*** Directly executes the entered command in order to test its functionality [without having to wait until an event occurs].

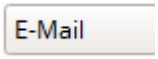
Command Examples

Executing Shell Scripts via the PowerShell provides numerous possibilities. Here are several examples on how to use these capabilities:

- Let your computer make a short beep sound:
  [console]::beep(1000,400)
- Start another software application, such as MADRIX 5:
  start-process -FilePath "C:\Program Files\MADRIX5\Madrix.exe"
  [C:\Program Files\MADRIX5\Madrix.exe is the default installation directory. MADRIX 5, in turn, could for example automatically start a Cue List, run a script or macro, or control a lighting fixture as a status light.]
- Start a batch file:
  start-process -FilePath "C:\Test\MyTestFile.bat"
  [C:\Test\MyTestFile.bat define the directory and specific file to launch. Batch files are scripting files that can start a more complex process or several tasks at once.]
- Write into a text file:
  "Alert" | Out-File C:\test\process.txt
  [Alert is the string that is written into the file. C:\test\process.txt define the directory and specific file to write into. Directory and file need to exist before the functionality can be used. MADRIX 5 Script can read from text files, for example.]
- Sending HTTP requests to MADRIX 5:
  Invoke-webrequest -URI http://10.0.0.49/index.html?SetStorage=S1P5
  [See the MADRIX 5 HTTP Remote Control Commands at »help.madrix.com for more information.]
- Sending HTTP requests to MADRIX AURA:
  Invoke-WebRequest -URI http://10.84.0.8/remote.cgi?Intensity
  [See the MADRIX AURA User Manual at »help.madrix.com for more information.]
- Combining several commands into a single HTTP request [for MADRIX 5 for example]:
  Invoke-webrequest -URI http://10.0.0.49/index.html?SetAudioOutputMute=1"&"SetBlackout=1
  [The & character needs to be embedded into "" regarding PowerShell scripting.]

Removing Actions

1] Select the action you wish to remove.



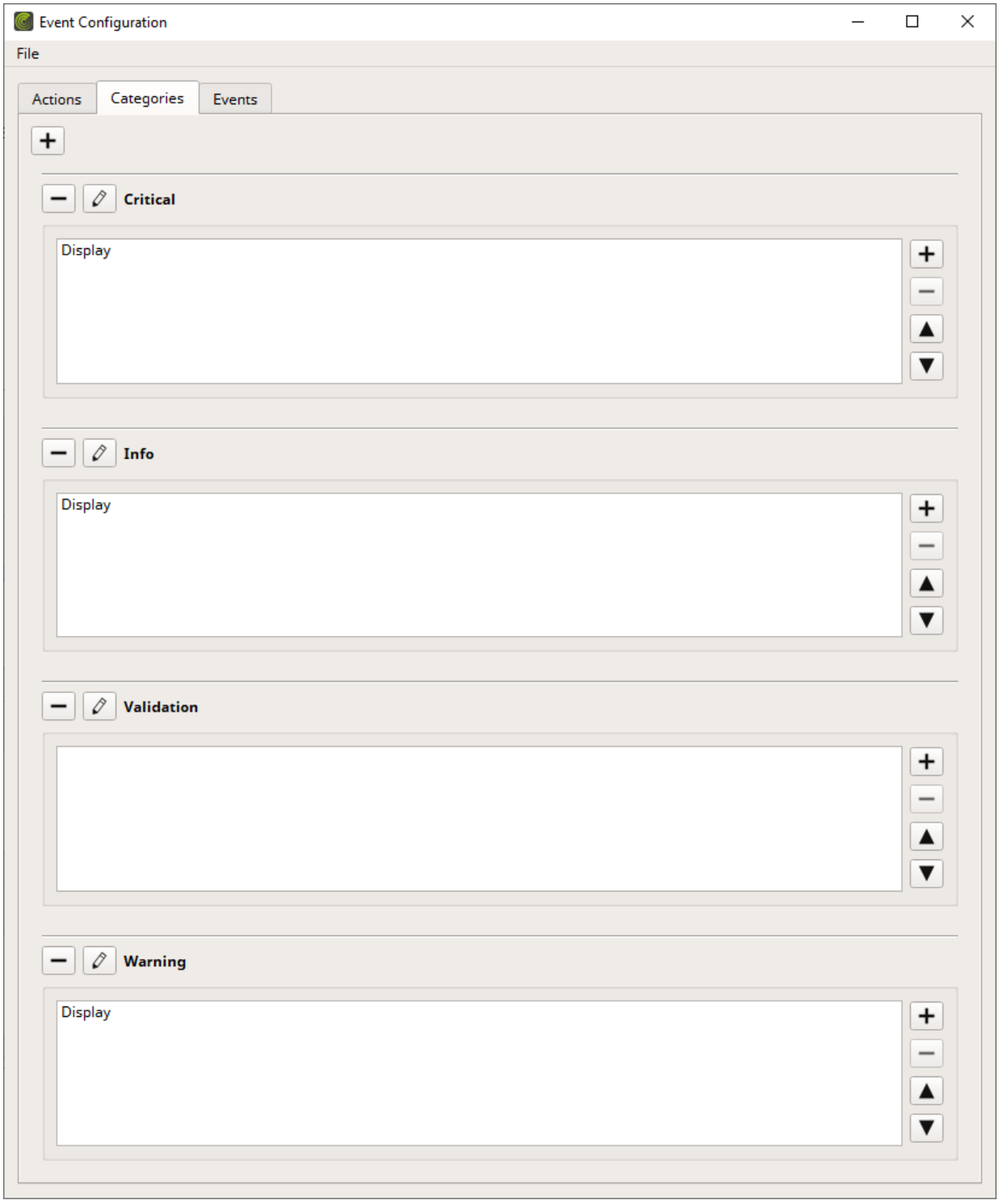
2] Click **-**

Categories

Overview

The Categories tab allows you to define different classes of events. This allows for more granular filtering and sorting [in the Events view, for example]. And you can set different notification settings [actions] for each category.

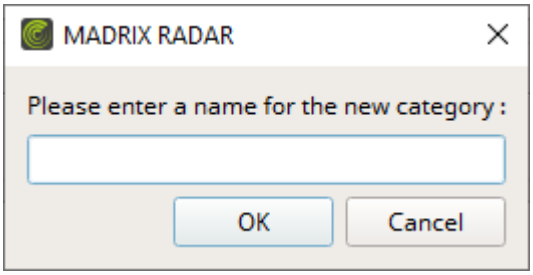
All categories are listed alphabetically.
By default, 4 categories have been defined [***Critical***, ***Info***, ***Validation***, ***Warning***].
Configure categories as described below.


Event Configuration
File
Actions
Categories
Events
Critical
Display
Info
Display
Validation
Warning
Display

Adding A New Category

1] Click **+** in the upper left corner to create a new category.

2] Enter a name for the new category. Confirm with ***OK***. Abort the process via ***Cancel***.



Renaming A Category

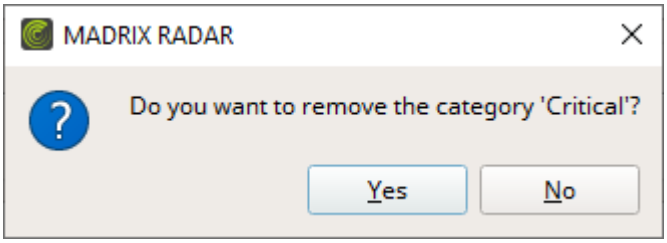
1] Click ***Edit*** next to the category name you wish to rename.

2] Change the current label or enter a new name. Confirm with ***Enter***. Abort the process with ***Cancel***.

Removing A Category

1] Click **-** next to the category name you wish to remove.

2] Confirm with ***Yes***. Abort the process via ***Cancel***.

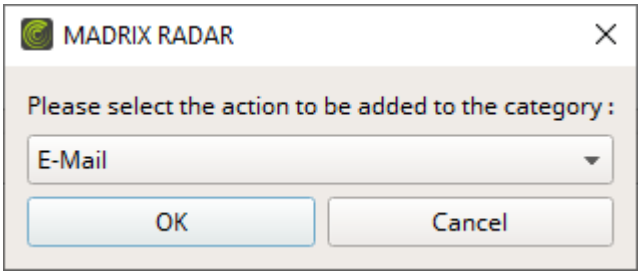


Please note: Any event that was assigned to a category that has now been removed is no longer assigned to a category.

Assigning Actions [Notifications]

Assign Action - Assigns an action to the particular category.

- A new window opens to choose the action. Confirm with ***OK***. Abort the process via ***Cancel***.
- A specific action can only be assigned once per category.
- You can assign any number of actions.
- Display refers to in-app notifications in the Events view.



Remove Assigned Action - Removes the currently selected action from the category again. Select the action first.

Prioritize Assigned Action - Allows you to rearrange assigned actions. Actions will be processed consecutively. Actions higher in the list will be processed first.

Deprioritize Assigned Action - Allows you to rearrange assigned actions. Actions will be processed consecutively. Actions lower in the list will be processed last.

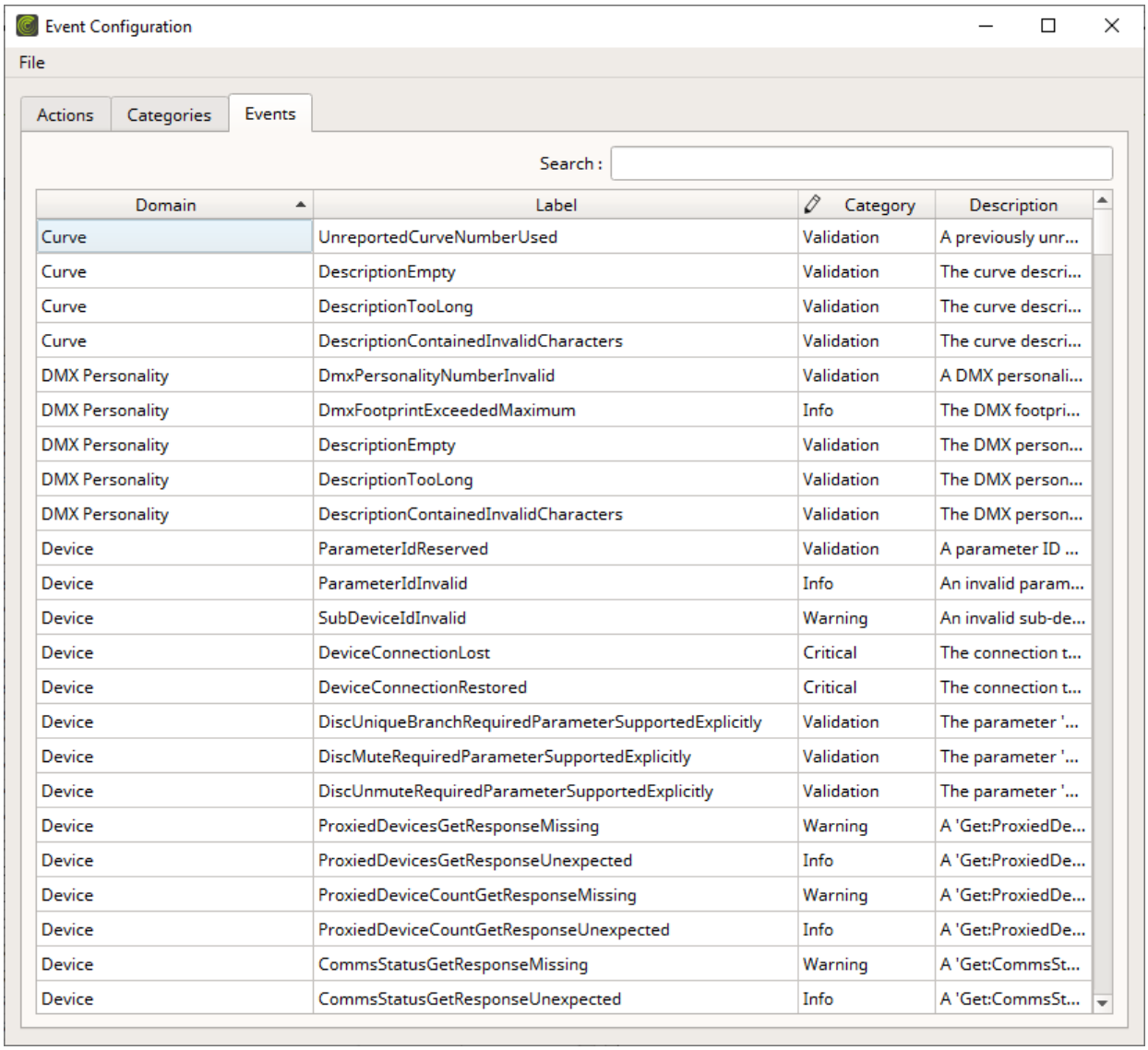
Events

Overview

The Events tab allows you to assign events to the different categories.

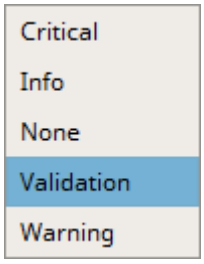
When an event occurs, it is categorized, which in turn triggers the assigned actions.

All possible events are listed here.



Domain	Label	Category	Description
Curve	UnreportedCurveNumberUsed	Validation	A previously unr...
Curve	DescriptionEmpty	Validation	The curve descri...
Curve	DescriptionTooLong	Validation	The curve descri...
Curve	DescriptionContainedInvalidCharacters	Validation	The curve descri...
DMX Personality	DmxPersonalityNumberInvalid	Validation	A DMX personali...
DMX Personality	DmxFootprintExceededMaximum	Info	The DMX footpri...
DMX Personality	DescriptionEmpty	Validation	The DMX person...
DMX Personality	DescriptionTooLong	Validation	The DMX person...
DMX Personality	DescriptionContainedInvalidCharacters	Validation	The DMX person...
Device	ParameterIdReserved	Validation	A parameter ID ...
Device	ParameterIdInvalid	Info	An invalid param...
Device	SubDeviceIdInvalid	Warning	An invalid sub-de...
Device	DeviceConnectionLost	Critical	The connection t...
Device	DeviceConnectionRestored	Critical	The connection t...
Device	DiscUniqueBranchRequiredParameterSupportedExplicitly	Validation	The parameter '...
Device	DiscMuteRequiredParameterSupportedExplicitly	Validation	The parameter '...
Device	DiscUnmuteRequiredParameterSupportedExplicitly	Validation	The parameter '...
Device	ProxiedDevicesGetResponseMissing	Warning	A 'Get:ProxiedDe...
Device	ProxiedDevicesGetResponseUnexpected	Info	A 'Get:ProxiedDe...
Device	ProxiedDeviceCountGetResponseMissing	Warning	A 'Get:ProxiedDe...
Device	ProxiedDeviceCountGetResponseUnexpected	Info	A 'Get:ProxiedDe...
Device	CommsStatusGetResponseMissing	Warning	A 'Get:CommsSt...
Device	CommsStatusGetResponseUnexpected	Info	A 'Get:CommsSt...

Domain	Shows the type of events.
Label	Shows the description of each specific event.
Category	Can be edited and allows you to assign each event to one of the categories you have defined.

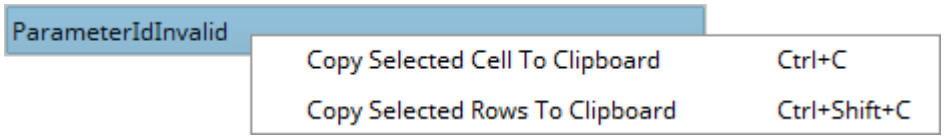


- Assign an event to a category [or leave the defaults].
- You can also choose ***None***, which means that the event does not trigger a notification.
- You can select multiple entries in the list to change their category all at once. Select the entries in the list first.
- Select ***File > New*** from the menu if you would like to restore the default settings.

Description	Shows an in-depth explanation of the event.

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Copy Selected Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]
Copy Selected Rows To Clipboard	Copies the currently selected line or lines [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]

Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***eve:max*** shows all lines that include events referring to maximums by referencing the column ***Event***, for example.

Special Events

In order to monitor if the connection to RDM devices/sub-devices/fixtures has been lost, use the following events:

- ***DeviceConnectionLost***
  [Indicating that the connection has been lost.]
- ***DeviceConnectionRestored***
  [Indicating that the connection has been restored successfully.]
- By default, these events are set to the Critical Category.

In order to monitor if the connection to interfaces has been lost, use the following events:

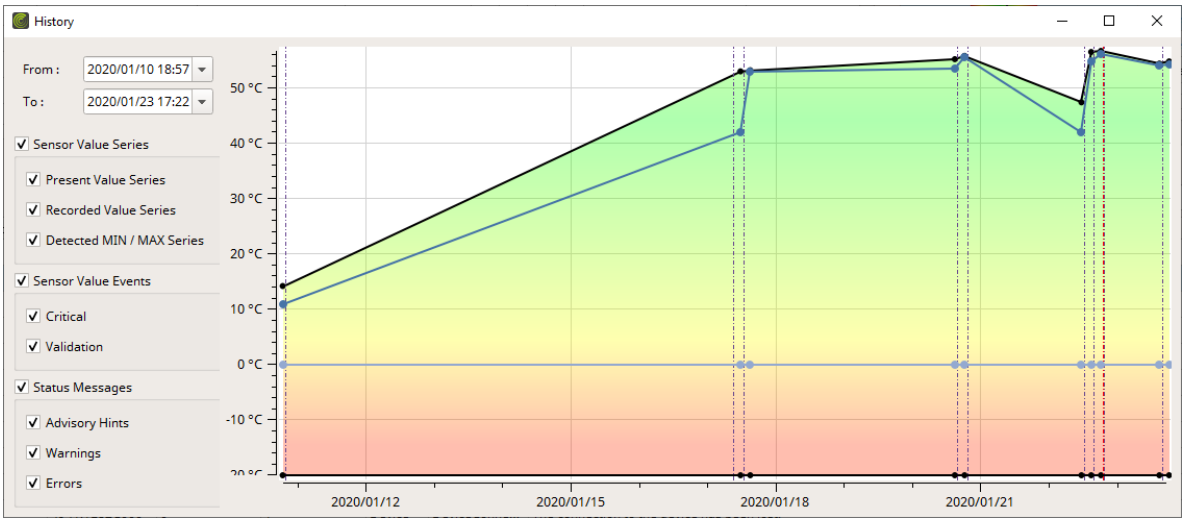
- ***InterfaceConnectionLost***
  [Indicating that the connection has been lost. The average time it takes before such an event is registered is: 3 minutes.]
- ***InterfaceConnectionRestored***
  [Indicating that the connection has been restored successfully.]
- By default, these events are set to the Critical Category.

6.10 History

This topic includes:

Introduction

The History view presents sensor values, sensor value events, and status messages of devices and their sensors graphically over time.



Requirements

In order to record data over time and make data progression visible in the History view, several requirements need to be met:

1] A MADRIX KEY with a valid ***MADRIX RADAR big data license*** needs to be connected to the software.
Learn more »**License System**

2] ***PostgreSQL Server*** needs to be set up as database management system.
Learn more »**Database**

3] The ***Store History*** settings need to be activated in the ***Options***.
Learn more »**Generators**

Overview

From	Allows you to define the exact beginning of the time interval that is shown as data graph. When navigating in the graphical view, this field will be updated accordingly and automatically.
To	Allows you to define the exact end of the time interval that is shown as data graph. When navigating in the graphical view, this field will be updated accordingly and automatically.
Sensor Values Series	Shows or hides all recorded sensor values. [This includes ***Present Value Series***, ***Recorded Values Series***, ***Detected MIN/MAX Series***.]
Present Value Series	Shows or hides all sensor values that were received based on regular RDM requests sent to the devices. Learn more »**Timing**

Recorded Values Series	Shows or hides all sensor values that were recorded by a device itself. A device needs to support this feature. Learn more »**Sensors**
Detected MIN/MAX Series	Shows or hides all Min/Max Detected sensor values, which are the lowest or highest values ever recorded for a sensor. A device needs to support this feature.

Sensor Value Events Shows or hides all reported sensor value events.
[By default, this includes ***Critical***, ***Validation***.]

Critical	Shows or hides all critical sensor value events. - If this category is shown depends on your settings. - By default, sensor value events are assigned to the categories Critical or Validation in the Event Configuration. - You can freely rename categories or assign new categories. - Learn more »**Event Notifications**
Validation	Shows or hides all validation sensor value events. - If this category is shown depends on your settings. - By default, sensor value events are assigned to the categories Critical or Validation in the Event Configuration. - You can freely rename categories or assign new categories. - Learn more »**Event Notifications**

Status Messages Shows or hides all recorded status messages of the device.
[This includes ***Advisory Hints***, ***Warnings***, ***Errors*** as defined by the RDM standard.]

Advisory Hints	Shows or hides all advisory status messages.
Warnings	Shows or hides all warning status messages.
Errors	Shows or hides all error status messages.

Navigation

You can easily navigate within the data graphs and adjust the view according to your needs.

Left Mouse Click + Hold + Move	Allows you to move freely along the X-axis and Y-axis.
Mouse Wheel	Quickly zooms in and out in order to narrow or enlarge the shown time interval. This determines the level of detail. Zooming in or out may group several data points, status messages, or events into one data point in order to declutter the graph. The tooltip will then include all items combined.
Ctrl + Mouse Wheel	Activates only the horizontal zoom and scales only along the X-axis.
Ctrl + Shift + Mouse Wheel	Activates only the vertical zoom and scales only along the Y-axis.

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.

Fit Plot To Viewport	Automatically defines a sensible scale of the X-axis [time interval] and Y-axis [unit] according to the recorded data that is currently shown.

[At least 2 data points need to be visible first.]

[Keyboard shortcut: ***Space***]

Visual Data Graphs

- In order to show historical data, you first need to
  - Select a single device [in the Devices View].
  and
  - Select a single sensor of this specific device [in the Sensors View].

- The following data will then be shown:
  - Sensor values of the selected sensor.
  - Sensor value events of the selected sensor.
  - Status messages of the selected device.

- ***Present Values*** will be shown as **blue line** [trend line] with **blue dots** [recorded data points].
- ***Recorded Values*** will be shown as **gray line** [trend line] with **gray dots** [recorded data points].
- ***MIN/MAX Values*** will be shown as **black line** [trend line] with **black dots** [recorded data points].
  - ***Mouse-Over -*** Hover with you mouse over such a dot and MADRIX RADAR will show a tooltip that includes the timestamp as well as the sensor value.
  - If a data point includes several sensor values, the average will be calculated for Momentary Values as well as Recorded Values. The lowest or highest value will be used for Min/Max Values.
  - A gradient [red-orange-yellow-green] will be drawn between value minimums and maximum and therefore include a helpful graphical representation of the current status. Learn more »**Sensors**

- **Sensor value events** will be shown as dashed/dotted, vertical lines:
  - In **purple**.
  - ***Mouse-Over -*** Hover with you mouse over such a line and MADRIX RADAR will show a tooltip that includes the timestamp [YYYY/MM/DD HH:MM:SS] as well as the event.

- **Status messages** will be shown as dashed/dotted, vertical lines:

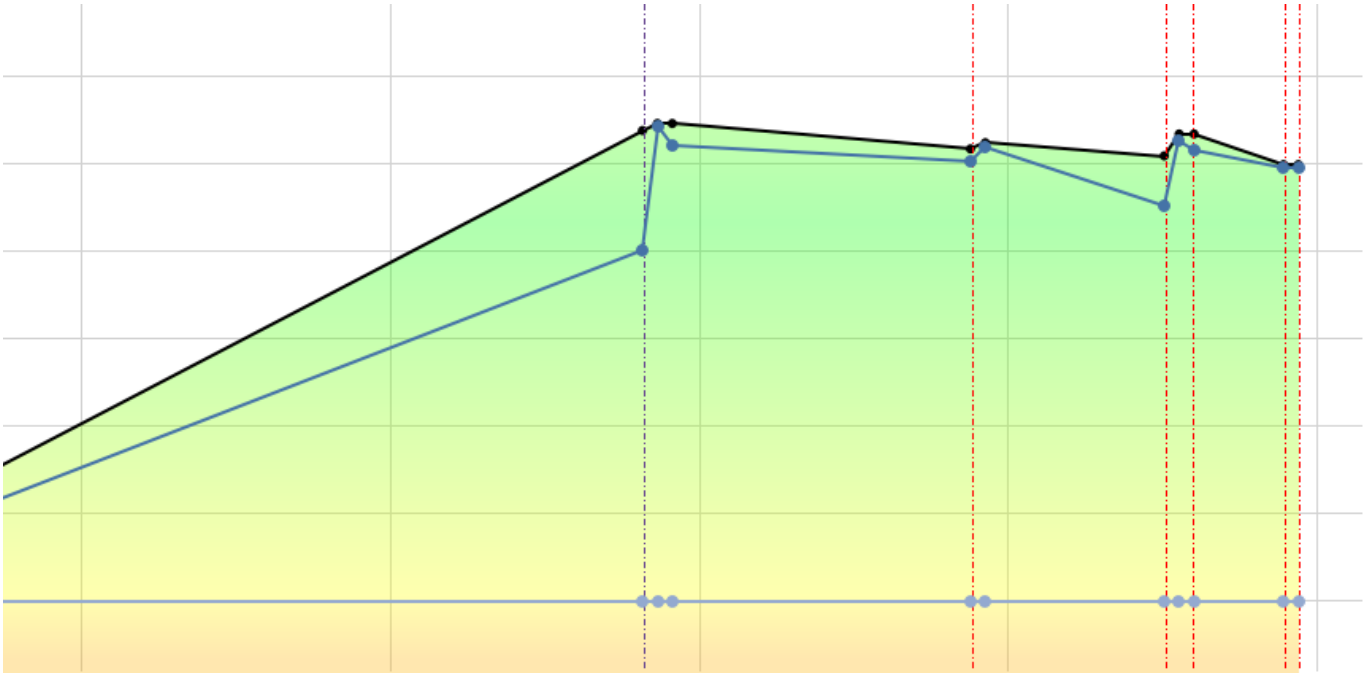
  - Category **Advisory** is shown in **white**.

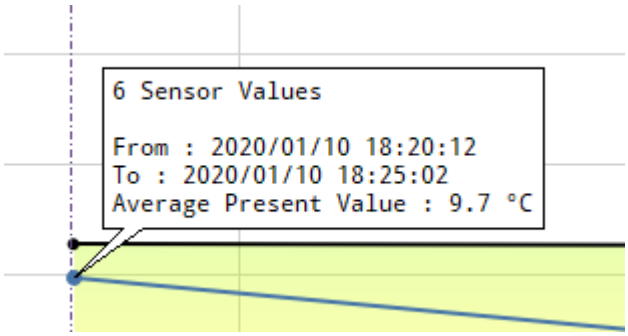
  - Category **Warning** is shown in **yellow**.

  - Category **Error** is shown in **red**.

  - ***Mouse-Over -*** Hover with you mouse over such a line and MADRIX RADAR will show a tooltip that includes the timestamp [YYYY/MM/DD HH:MM:SS] as well as the status message.

- The **X-axis** represents the timeline with time intervals.
- The **Y-axis** represents the unit of the sensor value [such as °C for temperatures].





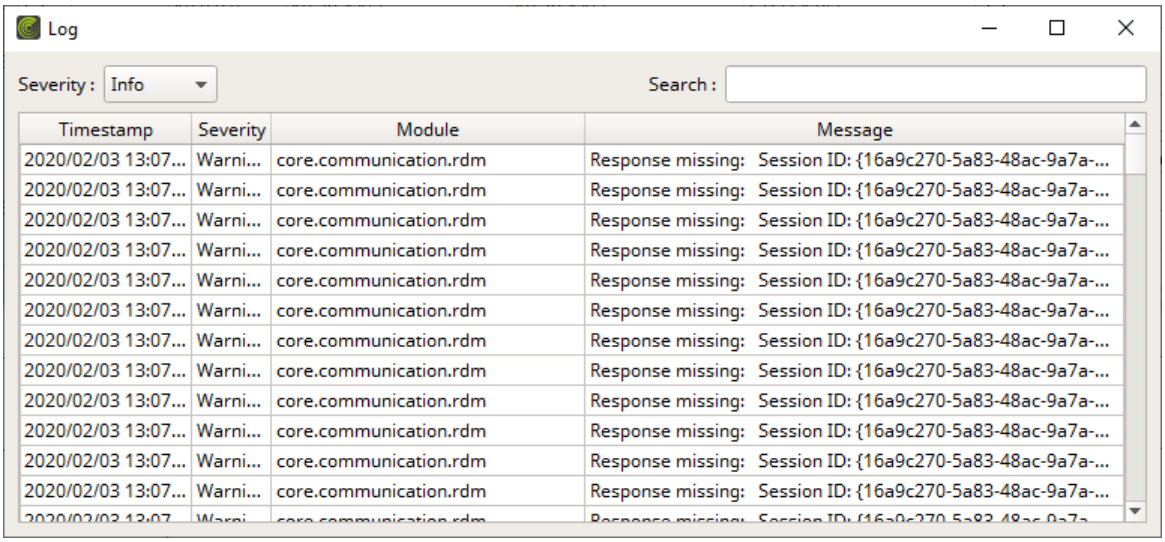
6.11 Log

This topic includes:

Introduction

The Log view shows all important occurrences of the MADRIX RADAR Software itself.

Such files are very helpful for technical support and assistance, but aren't necessarily required for the general use of the software. Still, it can provide you with valuable information and feedback for troubleshooting.



Overview

- ***Severity -*** Allows you to filter only for specific kinds of information [including ***Info***, ***Warning***, ***Critical***, ***Fatal***].
  - A specific severity level includes information for its own level as well as all higher levels.

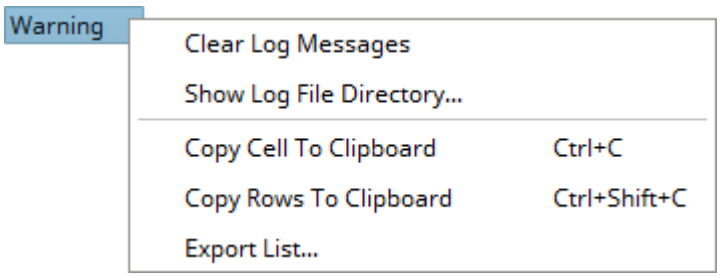
By default, the following information is provided since the following columns are enabled in the list:

Timestamp	Shows the local time when the status message occurred. [YYYY/MM/DD HH:MM:SS] [In contrast, log files are set to UTC time zone.]
Severity	Shows the classification for messages.
Module	Shows the software module [as information for the developers].
Message	Contains the contents and main information of the status message.

A maximum of 10,000 entries can be logged.

Context-Menu

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Clear Log Messages	Removes all logged items from the list.
Show Log File Directory...	Opens the folder on your computer that holds saved log files. [You can change the directory in the options »Logfile]
Copy Cell To Clipboard	Copies the currently selected cell [that is, single information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + C***]
Copy Rows To Clipboard	Copies the currently selected line or lines [that is, all parameter information] into the clipboard/temporary memory. [Keyboard shortcut: ***Ctrl + Shift + C***]
Export List...	Saves the entire, currently shown list/view/table as a preformatted text file.

Search

- ***Search -*** Enter any text in order to search all parameters in the list.
  - Any device/line that includes the search term will be shown. All others are temporarily filtered out.
  - Terms can be case-insensitive. You don't have to use capital letters.
  - Feel free to use terms that are incomplete. For example, ***mad*** will include results for ***MADRIX***.
  - You may specify certain columns by using a colon [:].
  - For example: ***mess:IP*** shows all lines that include IP device information by referencing the column ***Message***, for example.

Options

A new log file is created with each software start.

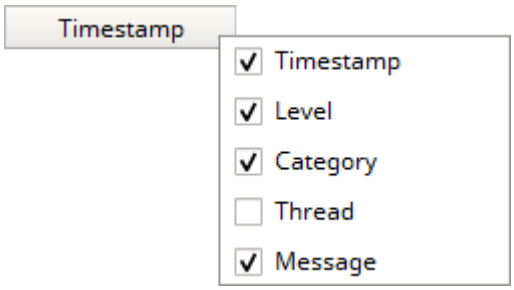
In addition, you can set up further settings for the Log in the Options.

Learn more »Logging

Customization

MADRIX RADAR allows you to choose which columns are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.



☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
Timestamp	Shows or hides the Timestamp column.
Severity	Shows or hides the Severity column.

Module	Shows or hides the Module column.
Thread	Shows or hides the Thread column.
Message	Shows or hides the Message column.

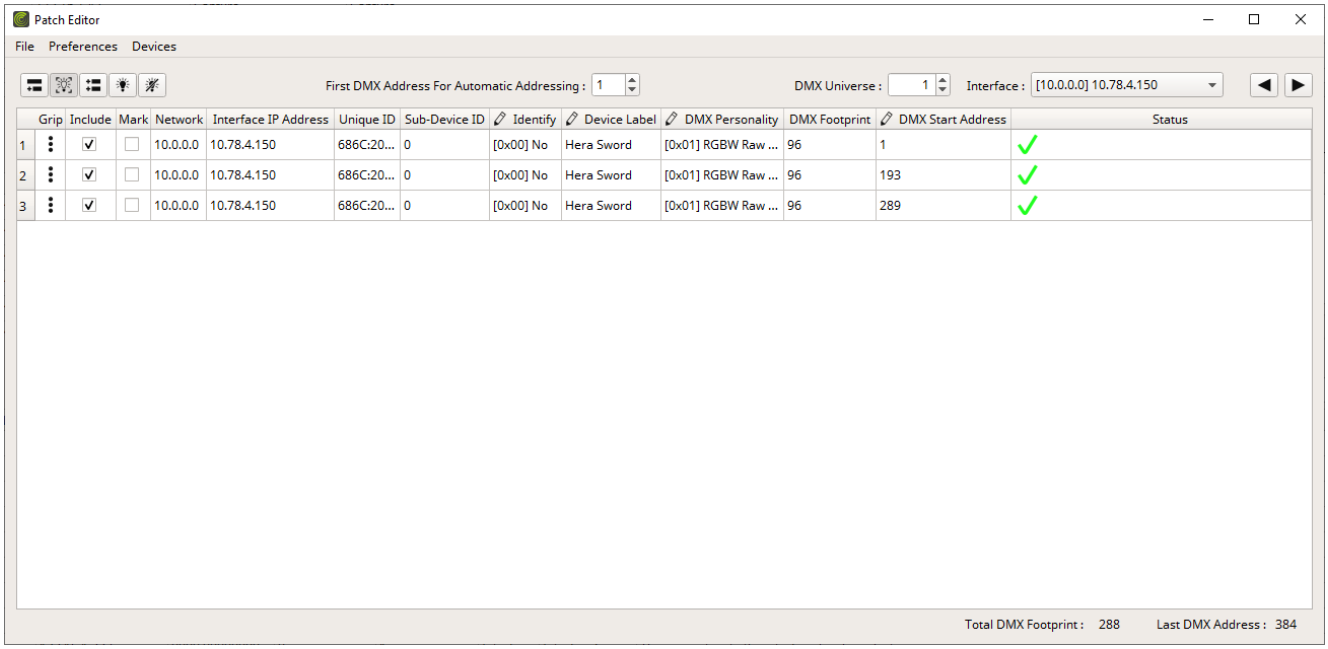
6.12 Patch Editor

This topic includes:

Introduction

The Patch Editor is an extremely useful tool to quickly address and connect RDM devices [mainly lighting fixtures], that is setting their DMX start address. It considerably speeds up the configuration and setup times of your lighting project.

- Go to the menu ***Devices > Patch Editor...***
  [Keyboard shortcut: ***F3***]



Overview

The following is a general overview. The workflows on how to work with this tool are described below.

Represents the device numbering as index and is especially useful for referencing devices in the list or seeing the total number of found devices.

Grip

Left Mouse Click + Hold + Drag & Drop - Indicates that you can change the order of devices by dragging & dropping the corresponding lines in the list. The order determines the addressing order when using the automatic patching process. Learn more below.

Include

Allows you to choose which devices to include in the automatic patching process. Learn more below.

Devices that report back a DMX foot print of 0, will be automatically excluded. You can include them manually again.

Mark	Colorizes the corresponding line of the list in green to label it for easy referencing, especially in long lists.
Network	Shows the network adapter, and its network IP address in particular, to which the RDM device is connected. [This information refers to »**Art-Net**.]
Interface IP Address	Shows the IP address of the hardware interface to which the RDM device is connected. [This information refers to »**Art-Net**.]
Unique ID	Represents a unique identifier of the RDM device. It is shown as HEX [without 0x] and using a colon [:] as separator. The first part is the ESTA ID of the manufacturer and the second part is a number, which can be freely defined by the manufacturer.
Sub-Device ID	Shows the sub-device ID for RDM devices that have one. For all others, the value is ***0***.
Identify	Can be edited. Allows you to choose/activate the built-in identification mode of the RDM device if available from the device. This usually means that the device will fully flash in white.
Device Label	Can be edited. Shows the currently set name or description of the RDM device.
DMX Personality	Can be edited. Shows the currently set DMX personality of the RDM device. This can also be referred to as operation mode of the RDM device.
DMX Foot Print	Shows the number of DMX channels a device uses; and as such requires for individual control. Depends on the currently set DMX personality. Devices that report back a DMX foot print of 0, will be automatically excluded. You can include them manually again.
DMX Start Address	Can be edited. Shows the currently set DMX start address of the RDM device. [Learn more »**Glossary**]

Status

Shows the current status of the patching process regarding this device.

- A green checkmark indicates that the currently set DMX start address is logical and valid.
- An orange triangle indicates that there is an issue. Refer to the displayed status message for more information.

Total DMX Footprint

Shows how many channels are currently occupied by the devices in the list.

- Amounts of channels that exceed the defined limited of 512 of the DMX standard will be highlighted in orange.

Last DMX Channel

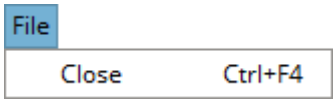
Shows the last occupied channel of the currently selected DMX universe.

- If the channels of the last RDM device exceed the defined limited of 512 of the DMX standard, the number will be highlighted in orange.

Please note: This list cannot be sorted by clicking on one of the column headers. The order of list entries defines the order devices are addressed when activating automatic addressing. The order of items needs to be set completely intentionally by you.

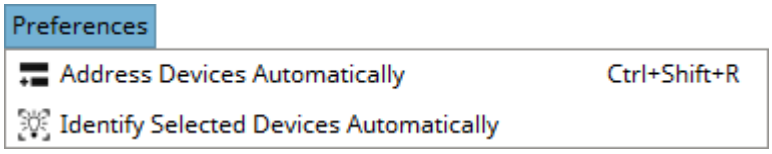
Menu

File



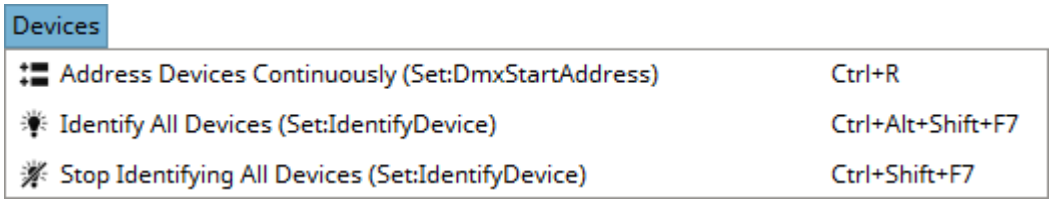
- ***Close -*** Closes the window of the Patch Editor.

Preferences



- ***Address Devices Automatically -*** Enables and activates the automatic patching process. Learn more below. Is disabled by default to not re-address devices unintentionally. It will also automatically be deactivated again after closing the Patch Editor.
  [Keyboard shortcut: ***Ctrl + Shift + R***]
- ***Identify Selected Devices Automatically -*** Automatically sets the Identify parameter to ***On*** in case one or more devices are selected in the list. [The parameter is set to ***Off*** for all devices that are not selected; or upon deselection.]

Devices



- ***Address Devices Continuously (Set:DmxStartAddress) -*** Recalculates the DMX addresses for all currently shown RDM devices and sets the new addresses [by sending the corresponding request to the devices].
  [Keyboard shortcut: ***Ctrl + R***]
  - As such you can trigger the automatic patching process once for the currently shown devices.

- ***Identify All Devices (Set:IdentifyDevice) -*** Sets the Identify parameter to ***On*** for all devices.
  [Keyboard shortcut: ***Ctrl + Alt + Shift + F7***]

- ***Stop Identifying All Devices (Set:IdentifyDevice) -*** Sets the Identify parameter to ***Off*** for all devices.
  [Keyboard shortcut: ***Ctrl + Shift + F7***]

Toolbar

Address Devices Automatically - Enables and activates the automatic patching process. Learn more below.
- Is disabled by default to not re-address devices unintentionally.
- It will also automatically be deactivated again after closing the Patch Editor or when changing the view by selecting a different ***DMX Universe*** or a different ***Interface***.
- [Keyboard shortcut: ***Ctrl + Shift + R***]

Identify Selected Devices Automatically - Automatically sets the Identify parameter to ***On*** in case one or more devices are selected in the list.
- [The parameter is set to ***Off*** for all devices that are not selected; or upon deselection.]
- is enabled by default.

Address Devices Continuously (Set:DmxStartAddress) - Recalculates the DMX addresses for all currently shown RDM devices and sets the new addresses [by sending the corresponding request to the devices]. - As such you can trigger the automatic patching process once for the currently shown devices.
- [Keyboard shortcut: ***Ctrl + R***]

Identify All Devices (Set:IdentifyDevice) **-** Sets the Identify parameter to ***On*** for all devices.
- [Keyboard shortcut: ***Ctrl + Alt + Shift + F7***]

Stop Identifying All Devices (Set:IdentifyDevice) **-** Sets the Identify parameter to ***Off*** for all devices.
- [Keyboard shortcut: ***Ctrl + Shift + F7***]

First DMX Address For Automatic Addressing

Defines the first DMX address to use when addressing devices in the automatic patching process. As such, it defines the DMX start address of the first device in the list.
- Is only available when having ***Patch DMX Start Addresses Continuously*** enabled.

DMX Universe

Defines which DMX universe is currently shown; and as such shows all devices that are assigned to this universe.

Pay attention to this setting! It has a profound effect on how the Patch Editor works and how it shows the current status. For example, if ***Universe*** is set to 1 and ***Interface*** is set to All, the Patch Editor is likely to display status messages for issues, which may not be an issue at all. Make sure to switch to a single interface in order to check or use ***Previous / Next*** to check all interfaces and universes one by one.

Interface

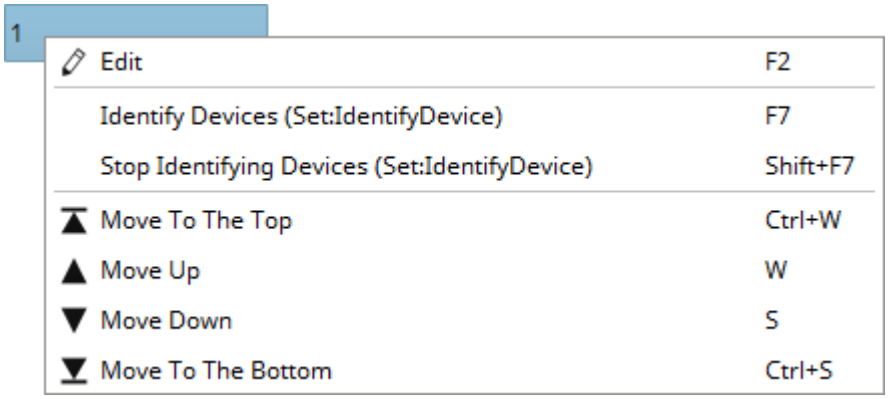
Shows all interfaces that have RDM devices connected for the currently selected ***DMX Universe***. As such, it allows you to narrow the list of shown RDM devices to specific hardware interfaces.
If available, the Interface Short Name is added after the IP address in brackets for reference.

Pay attention to this setting! It has a profound effect on how the Patch Editor works and how it shows the current status. For example, if ***Universe*** is set to 1 and ***Interface*** is set to All, the Patch Editor is likely to display status messages for issues, which may not be an issue at all. Make sure to switch to a single interface in order to check or use ***Previous / Next*** to check all interfaces and universes one by one.

Previous / Next - Provide buttons for quick navigation.
- If ***All*** is selected for ***Interface***: Skips through the DMX universes.
- If a **specific** device is selected for ***Interface***: Skips through the available interfaces of the currently selected universe first, and then to the next or previous universe, where it iterates through the interfaces again; before going to the next or previous universe.

Context-Menu And Keyboard Navigation

- ***Right Mouse Click -*** Perform a click with your right mouse button on an entry.



Edit	Allows you to change the entry [if it can be edited]. [Keyboard shortcut: ***F2***]
Identify Devices (Set:IdentifyDevice)	Sets the Identify parameter to ***On*** for all currently selected devices. [Keyboard shortcut: ***F7***]
Stop Identifying Devices (Set:IdentifyDevice)	Stops the identification mode for all currently selected devices. [Keyboard shortcut: ***Shift + F7***]

Move To The Top	Sends the currently selected item to the very top of the list in order to place it first. You can easily rearrange the list by using the keyboard. Select a list entry first and then use the keyboard shortcut: ***Ctrl + W***.
Move Up	Moves the currently selected item one place up in the list. You can easily rearrange the list by using the keyboard. Select a list entry first and then use the keyboard shortcut: ***W***.
Move Down	Moves the currently selected item one place down in the list. You can easily rearrange the list by using the keyboard. Select a list entry first and then use the keyboard shortcut: ***S***.
Move To The Bottom	Sends the currently selected item to the very bottom of the list in order to place it last. You can easily rearrange the list by using the keyboard. Select a list entry first and then use the keyboard shortcut: ***Ctrl + S***.

Editing And Changing Values

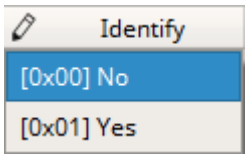
It is recommended to set the correct *Universe* and *Interface* first or use *Previous / Next* accordingly [as described above].

Overview

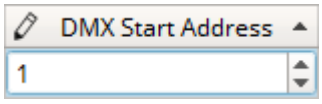
-  In specific cases, the edit icon [that is, a pen] shows that the respective information/column can be edited by you.

Single Edits

- ***Left Mouse Click + Hold -*** Allows you to select a single cell.
- ***Left Mouse Double-Click -*** Perform a double-click with your left mouse button on a value in order to edit it.
- Keyboard shortcut: ***F2***
- Confirm with ***Enter*** [or click outside of the currently active cell with the mouse]. Abort any changes with ***Escape***.



You may be presented with different choices for the specific parameter.



You may be able to directly enter numbers or text as input.

Multi-Edits

- ***Ctrl + Left Mouse Click*** or ***Shift + Left Mouse Click + Select First List Entry + Select Last List Entry -*** Allows you to select multiple items in the list.
- ***Ctrl + A -*** Selects all devices in the list.
- ***F2 -*** Activates the edit mode for multiple devices at once. Select multiple devices first.
- Confirm with ***Enter*** [or click outside of the currently active cell with the mouse]. Abort any changes with ***Escape***.

Valid Values And Limits

The valid values for each parameter are defined by the RDM device and its set of features [such as DMX Personality], the RDM standard [such as Identify], or a different standard [such as DMX Start Address for DMX512].

Visual Feedback For Edits

The software will show you if any changes you have made are set successfully or not. This status is shown for a couple of seconds after each change.

Green - The RDM device reported back that the changes were successfully set.

Yellow - The request is currently pending.

Red - The RDM device could not successfully set the new value or the request timed out. Learn more »**Missing Responses From RDM Devices**

Automatic Workflow

You can use the Patch Editor to quickly set the DMX addresses for RDM devices [lighting fixtures]. As such, a workflow could look like described below.
Please note the available settings as described above as well as the individual characteristics of each project.

1] Set up the ***First DMX Address For Automatic Addressing***.

2] Choose the ***DMX Universe*** you wish to work in.

3] Change ***Interface > All*** to the first interface.

4] Activate ***Address Devices Automatically*** [via keyboard shortcut, the menu, or the toolbar]. MADRIX RADAR will automatically address each RDM device according to the order in the list and their equivalent DMX foot print.

5] Select each device in the list while having ***Identify Selected Devices Automatically*** activated. The corresponding fixture will light up on the installation.

6] If a fixture is not addressed correctly, use drag & drop in the list to correct the order of devices. MADRIX RADAR will automatically re-address all subsequent RDM devices.

7] Select a device to set its identify mode to ***On*** and double-check the order of devices and their addresses again.

8]  - Quickly navigate through universes and hardware interfaces using the navigation buttons and repeat the above steps for each universe/hardware interface.

Semi-Automatic Workflow

You can manually set up the DMX addresses of an RDM device. As such, a workflow could look like described below.
It is recommended to set the correct ***Universe*** and ***Interface*** first or use ***Previous / Next*** accordingly [as described above].

1] Select a device in the list while having ***Identify Selected Devices Automatically*** activated. The corresponding fixture will light up on the installation.

2] Manually enter the correct ***DMX Start Address*** in the corresponding column of the list.

3] Proceed accordingly with the next RDM devices.

4]  - Quickly navigate through universes and hardware interfaces using the navigation buttons and repeat the above steps for each universe/hardware interface.

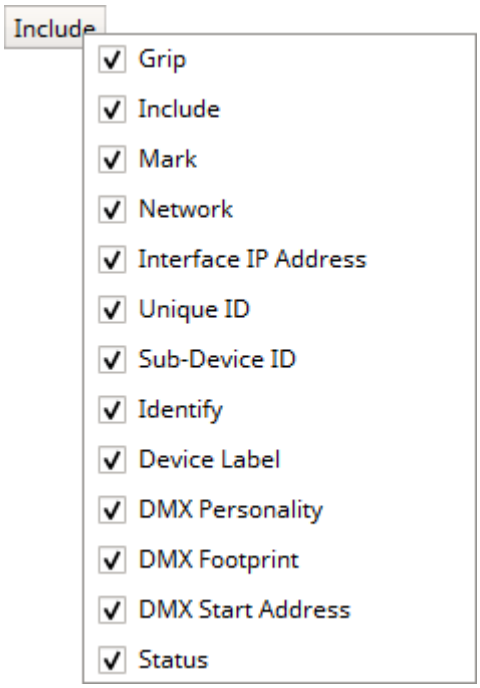
Troubleshooting

- The Patch Editor will only show devices if their display is covered by a valid MADRIX RADAR license. Learn more »License System
- Please note that if a device reports back a DMX foot print of 0, automatic patching will not work in this case.
- RDM does not support changing the assignment of the DMX universe of a device.

Customization

MADRIX RADAR allows you to choose which columns are presented in this view. You can decide which columns are hidden or shown.

- ***Right Mouse Click -*** Perform a click with your right mouse button anywhere on the header of the list.



☑	***Shown -*** A checkmark means that columns are shown.
☐	***Hidden -*** No checkmark means that columns are hidden.
Grid	Shows or hides the Grid column.
Include	Shows or hides the Include column.
Mark	Shows or hides the Mark column.
Network	Shows or hides the Network column.

Interface IP Address	Shows or hides the Interface IP Address column.
Unique ID	Shows or hides the Unique ID column.
Sub-Device ID	Shows or hides the Sub-Device ID column.
Identify	Shows or hides the Identify column.
Device Label	Shows or hides the Device Label column.
DMX Personality	Shows or hides the DMX Personality column.
DMX Footprint	Shows or hides the DMX Foot Print column.
DMX Start Address	Shows or hides the DMX Start Address column.
Status	Shows or hides the Status column.

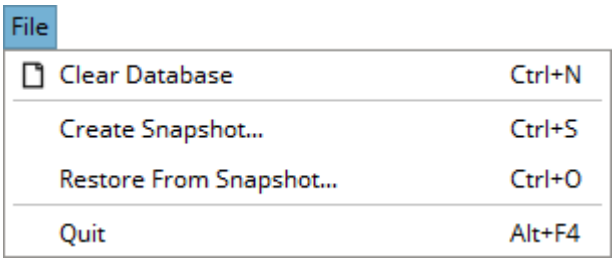
6.13 Snapshots

This topic includes:

Introduction

Snapshots in MADRIX RADAR store all editable parameters of all listed RDM devices in a single file for preservation and future reference.
In practice, that means for example that a base configuration with correct DMX addresses for all of your lighting fixtures can be saved [and loaded again in the future] if you needed to change the DMX addresses for testing purposes in between.

MADRIX RADAR can create snapshots or restore settings for your devices again from a snapshot.



Creating A Snapshot

In order to be able to load a snapshot, you need to create at least one snapshot first.

- Go to the menu ***File > Create Snapshot...***
  [Keyboard shortcut: ***Ctrl + S***]
- A new window opens.
  - Enter a meaningful file name and choose the correct directory to save the file.
  - Confirm with ***Save***. Abort via ***Cancel***.

- A MADRIX RADAR Snapshot is saved as an external file [of the file type *.rsx].

- There is no limit as to how many snapshots can be saved [except the available storage on your harddisk].

- Snapshots include the settings of all RDM devices that are stored in your database and thus listed in the Devices view.
- Only parameters that are supported by your RDM devices will be saved in the snapshot [and later can be restored].

- All parameters of RDM devices which can be set, i.e. can be changed or edited, will be saved in a snapshot [Set-Commands]. This may include parameters, such as:
  - All manufacturer-specific parameters
  - Identify
  - Device Label
  - DMX Start Address
  - DMX Personality
  - Sub-Device Status-Report Threshold
  - Factory Defaults
  - Language
  - Device Hours
  - Lamp Hours
  - Lamp Strikes
  - Lamp State
  - Lamp-On Mode
  - Power State
  - Power Cycles
  - Display Invert
  - Display Level
  - Pan Invert
  - Tilt Invert
  - Pan Tilt Swap
  - Clock
  - Self-Test
  - Preset Scene Number
  - DMX Fail Mode
  - DMX Startup Mode
  - Dimmer Minimum
  - Dimmer Maximum
  - Dimmer Curve

- Dimmer Output Response Time
- Modulation Frequency
- Burn-In
- Lock Pin
- Lock State
- Preset Merge Mode
- Power-On Self-Test
- Block Address
- Identify Mode

Restoring From A Snapshot

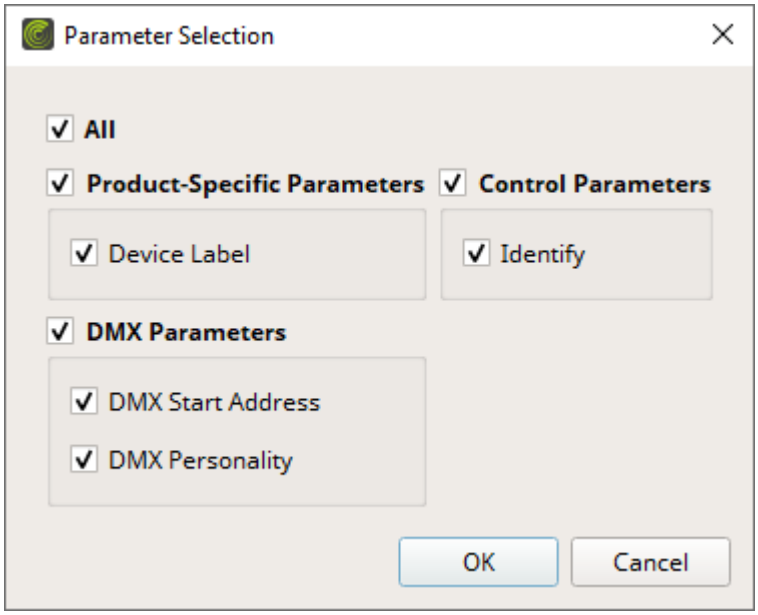
You can restore the settings of the RDM devices again by loading a snapshot.

Important

- **Restoring from a snapshot will overwrite the current settings of your RDM devices!**

It may be advisable to first create an additional snapshot of the current settings before restoring from a previous snapshot. Then, you can quickly revert to the current settings again.

- Go to the menu ***File > Restore From Snapshot...***
  [Keyboard shortcut: ***Ctrl + O***]
- A new window opens.
  - You can select parameters which should be restored and deselect parameters which should not be restored.
  - Only parameters that are supported by your RDM devices are included, and can thus be selected and restored.
  - You can choose from all parameters, entire parameter categories, or specific single parameters.
  - Confirm your selection with ***OK***. Abort via ***Cancel***.

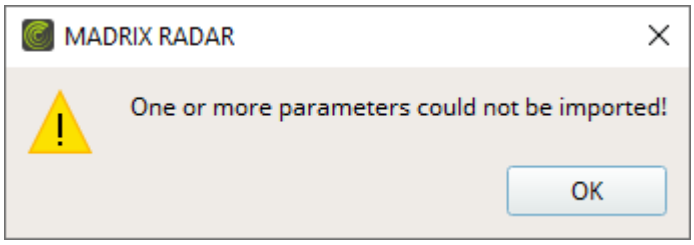


- When confirmed with ***OK***, the settings of your RDM devices will be changed in the Devices view [Main view]. You will see visual feedback of those edits as usual.
  - Learn more »**Devices [Main View]**

Troubleshooting

If you are running into issues, refer to the tips and tricks below.

- A warning message indicates if restoring from a snapshot was not entirely successful: 'One or more parameters could not be imported!'.
  - One of the reasons could be that certain RDM devices are not available anymore in the database [and thus the list of devices], but the snapshot includes them and their settings.



- Restoring from a snapshot potentially modifies a very large number of RDM devices at the same time.
  - The process of restoring from a snapshot may need time to be processed by the software, by the hardware interfaces, and by the RDM devices themselves. Please allow some time.

- Since the snapshot feature modifies the settings of your RDM devices, the successful editing of these settings depends on how well your RDM devices respond to such changes.
  - You may run into issues and unsuccessful restoration if RDM devices are prone to error when changing all or certain parameters.

- If you are running into issues, try the following means to prevent or circumvent them:
  - Use the latest firmware for your hardware interfaces and for your RDM devices.
  - Use the Parameter Selection window to deselect parameters you know to be problematic with regard to your RDM devices.
  - Try again to restore from a snapshot one more time or possibly more.
  - Use the visual feedback of edits on the user interface in the Devices view to find possible problems. Learn more »**Devices [Main View]**
  - Adjust the communication settings of the software, such as the Transaction Timeout and allow increase the time from 13 s to 30 s. Learn more »**Timing**
  - Take into consideration the settings of the software, such as how often MADRIX RADAR is set to update the user interface. Learn more »**Timing**
  - Take into consideration the settings of the software, such as how often MADRIX RADAR is set to request updates from RDM devices, updates the database, and shows the current status on the user interface. Learn more »**Generators**
  - Pause the monitoring of RDM devices before restoring from a snapshot. Learn more »**Menu**
  - Learn about the technical limitations and realities of the technologies involved. See »**Missing Responses From RDM Devices**

6.14 Troubleshooting

This topic includes:

Overview

Refer to the topics below to troubleshoot occurring issues.

Missing Responses From RDM Devices

Due to the underlying technologies, you may be experiencing that an RDM device could not successfully apply a setting changed by you [i.e., a new value] or that the request timed out.
This is likely due to a missing response, which means that MADRIX RADAR did not receive information back from the device or that the device did not even receive the initial request in the first place.

There are a number of reasons why a Set-Command might not reach a device or why a response may be missing:

- **Timeouts Of RDM Responders**

  - In the Options of MADRIX RADAR, a Transaction Timeout is defined. It defines the maximum time in seconds after which a pending response for an RDM request is considered missing. See »Timing
  - This option reflects the realities of working with RDM.
  - An RDM Responder might receive too many requests, such as Set-Commands and Get-Commands, and might not be able to respond to all of them.
  - In return, responses are missing.

- **UDP**

  - MADRIX RADAR uses RDM over Art-Net. This data tunnel is referenced as the ArtRdm subcategory within Art-Net. Art-Net is a communication protocol using Ethernet networks.
  - Art-Net is using UDP, the User-Datagram Protocol. By using the simpler connectionless communication and not connection-oriented communication, UDP does not include mechanisms to monitor the state of sent packets.
  - The protocol therefore does not include responses if a packet has been received by the recipient. Packets are simply sent out without maintaining a steady connection between sender and receiver as UDP was not designed for this.
  - As explained above, MADRIX RADAR has implemented its own mechanisms to try to sustain the connection and assign responses to the corresponding requests. However, after a certain time responses need to be considered as lost. Otherwise, you would need to wait indefinitely for responses, which defeats the purpose of working with

RDM devices productively.

- Due to the design of the protocol, responses therefore can be lost.

- One reason can be that there is too much data traffic on the network. [In this case, you can reduce traffic by temporarily switching off senders and by pausing the monitoring of MADRIX RADAR, for example.]

- Another reason can be that the used network switch does not have enough memory to successfully transmit all data packets. [More advanced professional networking gear can help meet the actual requirements of the network and its data traffic.]

- **Processing Timings Of Hardware Interfaces**

  - Hardware interfaces, such as MADRIX STELLA, need to process the RDM data packets.

  - Thereby, certain timings are used for the communication between RDM Controllers and RDM Responders.

  - Managers, such as MADRIX RADAR, in turn may use their own timings to send data to the RDM Controllers.

  - A high number of data packets or aggressive timings can lead to the situation that RDM controllers cannot fully process incoming packets, since their buffer might not be large enough. Then, older packets might be discarded since new packets were already received.

Pending Generator Requests

You may find the following messages in the Log view or log files:

- ***No parameter requests have been generated in the recent interval of <set generator interval> due to still pending requests! This may be caused by a temporary peak of other requests, or inappropriate generator settings.***

- ***No sensor value requests have been generated in the recent interval of <set generator interval> due to still pending requests! This may be caused by a temporary peak of other requests, or inappropriate generator settings.***

- ***No status message requests have been generated in the recent interval of <set generator interval> due to still pending requests! This may be caused by a temporary peak of other requests, or inappropriate generator settings.***

This indicates a peak in queued requests referring to a temporarily fully occupied scheduler. If you are seeing such a message, work through the following steps:

1] How Often Is The Message Appearing?

- **Rarely -** You may only run into this issue due to additionally triggered actions, such as Identify All Devices, or Discover Devices. In this case, probably no further action is required.
- **Often -** You should check the settings under ***Preferences > Options... > Generators***. You may need to reduce the intervals by increasing the settings.

2] Which Generator Is Mainly Affected?

- **Parameter Request Generator -** Too many parameters, sensor values, and/or status messages are being requested in too small time intervals. You should check the settings under ***Preferences > Options... > Generators***. You may need to reduce the intervals by increasing the settings of the generators.
- **Sensor-Value Request Generator -** Too many sensor values and/or status messages are being requested in too small time intervals. You should check the settings under ***Preferences > Options... > Generators***. You may need to reduce the intervals by increasing the settings of the generators.
- **Status-Message Request Generator -** Too many status messages are being requested in too small time intervals. You should check the settings under ***Preferences > Options... > Generators***. You may need to reduce the intervals by increasing the settings of the generators.

3] Was Changing The Timing Intervals Of The Generators Not Sufficient Or Cannot Be Applied?

- ***Sending Frame Time (s) -*** Check the setting under ***Preferences > Options... > Timing***. You may need to reduce the setting. But do not set it lower than the Frame Time of the slowest hardware interface in the installation!
- **How are lighting fixtures distributed among hardware interfaces and DMX universes?** You may need to change the wiring and counterbalance the DMX lines more equally to reduce data traffic on each individual line.

MADRIX LIGHTING CONTROL

//PART 7

MADRIX RDM Nodes

7 MADRIX RDM Nodes

This topic includes:

Introduction

Combined with neat hardware products, the MADRIX system is a proven and innovative LED control solution. MADRIX hardware reliably transfers the lighting data to your LEDs and controllers. Any small or large LED installation benefits from prime build quality and outstanding features.

Topics Of This Chapter

Learn more about MADRIX hardware interfaces that support RDM:

7.1 MADRIX STELLA

This topic includes:

Overview

MADRIX STELLA is a 2-port network node with RDM support for solid-state projects.
The MADRIX STELLA is a dedicated control interface for DMX512 and Art-Net or Streaming ACN that is designed for high quality and practicability in permanent LED installations.

RDM Role: Transmits commands and requests to RDM Responders and back (Art-Net Node / RDM Controller)

Required Firmware Version

In order to function properly, the following firmware version is at least required for all MADRIX STELLA devices as minimum version in combination with MADRIX RADAR:

- 2.3.7261

It is recommended to always use the latest firmware version.

Using A 3rd-Party Controller

MADRIX STELLA is a standard network node. Because of this, you can use the device with applications, consoles, desks, or controllers that are compatible with Art-Net or Streaming ACN [sACN] to distribute network data via Ethernet network.

Putting The Device Into Operation

1] Connecting Your LED Fixtures/DMX Devices

Please see the ***MADRIX STELLA Technical Manual & Quick Start Guide*** on how to connect your LED fixtures/DMX devices to MADRIX STELLA.

»help.madrix.com

2] Connecting To Power And Data

Please see the ***MADRIX STELLA Technical Manual & Quick Start Guide*** on how to connect to power and data.

»help.madrix.com

3] Device Settings

Make sure to set the correct network data source and other settings according to the controller/sender you want to use.

Continue with:

- Device Configuration

LED Status Codes

The following tables describe the LED status codes of the device.

STATUS	STATUS LED POWER
powered off	Power not connected. → The device has no power.
Permanently green	Connected to power. → The power is on.
Blinking green	Bootloader activated. → Reset device / upload firmware.

STATUS	STATUS LED USB
powered off	USB not connected.
Red + blinking green	Communicating over USB. → Sending or receiving data over USB. The USB port works.
Fading between red +green	Connected to USB; Drivers installed correctly. → No data is sent over USB.
Orange	Connected to USB; No drivers installed. → Reinstall software and drivers or try a different USB port.

STATUS	STATUS LED DMX 1	STATUS LED DMX 2
powered off	No data is sent.	No data is sent.
Blinking green	Sending or receiving data. → The DMX port works.	Sending or receiving data. → The DMX port works.

STATUS	STATUS LEDS ETHERNET PORTS
Green off	10 MBit/s connected.
Green on	100 MBit/s connected.
Orange on	Network connected.
Orange blinking	Sending or receiving data. → The Ethernet port works.

Remote Device Management [RDM]

In order to use it, call up the built-in web configuration [see below] and go to ***DMX Output Settings > Enable RDM*** for ports ***DMX 1*** and/or ***DMX 2***

Make sure to disable RDM on the specific port, when using STELLA for DMX-IN.

Daisy-Chain Support

STELLA features 2 separate Ethernet network ports. Either one is fully functionally for IN and OUT and can be used for the data connection without using a separate network switch or router.

[We recommend to connect a maximum of 40 units after one another in a row, when using Art-Net in Unicast Mode or Streaming ACN Multicast at a max. data rate of 50 FPS / 20 ms without any additional devices in the network.
In the MADRIX 5 Software, we highly recommend to activate ArtSync for excellent image quality.]

Reset To Factory Default Settings

In rare cases, you might need to do a reset to factory default settings, for example to reset to the device to its default IP address as shown on the side of the device:

Reset Via Reset Button

1] Disconnect all connections from the device [power, data, DMX].

2] Use a suitable tool to press the reset button [between DMX 1 and 2].

3] Continue to press the reset button and supply power again over 'Power' or USB.

4] Continue to press the reset button and wait until all status LEDs of the device flash repeatedly or wait 10 seconds.
[Simply repeat these steps should the process fail.]

Device Configuration

When connected to Ethernet network, you can easily configure MADRIX STELLA using the built-in web configuration page.
Both, STELLA and your computer, need to be in the same network.

Using a standard web browser:

- Connect MADRIX STELLA and your computer to the same network.
- Assign correct network settings for your PC in the Windows operating system.
  [Recommended default settings: IP address 10.0.0.1 / Subnet mask 255.0.0.0]
  [Please note: Your devices and the sender, such as the PC that runs MADRIX RADAR, need to have the same subnet mask!]
- Open your web browser and enter the IP address of MADRIX STELLA.
  [You can find the default IP address on the back side of the device.]
- The web configuration page will be launched. Now, you have access to various information and settings.

Configuration Using A Web Browser

When connected to Ethernet network, you can easily configure MADRIX STELLA using the built-in web configuration page.

You have access to the web interface. Both, STELLA and your computer, need to be in the same network.

Using a standard web browser:

- Connect MADRIX STELLA and your computer to the same network.
- Assign correct network settings for your PC in the Windows operating system.
  [Recommended default settings: IP address 10.0.0.1 / Subnet mask 255.0.0.0]
  [Please note: Your devices and the sender, such as the PC that runs MADRIX 5, need to have the same subnet mask!]

- Open your web browser and enter the IP address of MADRIX STELLA.
  [You can find the default IP address on the back side of the device.]
- The web configuration page will be launched. Now, you have access to various information and settings.

MADRIX STELLA automatically switches to input when receiving data [DMX-IN]. Since this happens automatically, there is no need and no option to manually switch from output to input.

Please confirm any changes with ***Set***

Device

Name - You can change the description of the device by entering a name.
Confirm with ***Set***

Network Address

You can change the basic network device settings.
Confirm with ***Set***

- ***IP Address***
- ***Subnet Mask***
  [Please note: Your devices and the sender, such as the PC that runs MADRIX 5, need to have the same subnet mask!]

Network To DMX Output

This section shows the network settings when using the DMX ports for output [DMX 1 and DMX 2].
Confirm with ***Set***

Assigned Network Universe - Defines the universe on which data is sent.

- By default, universe 1 and 2 assigned to DMX 1 and DMX 2.
- If you are broadcasting data for a large number of Universes [using Broadcast Mode instead of using Unicast Mode] with MADRIX 5 or a 3rd-party controller for example, you can assign different DMX universes to each STELLA device with these settings. Each MADRIX STELLA will then only receive data from the specific Art-Net universe and send it to its specified output port.
  Example: You can set up that STELLA #1 only listens to Art-Net universe 1 and 2,

while STELLA #2 listens to Art-Net universe 3 and 4, and STELLA #3 listens to Art-Net universe 5 and 6, and so on.

- Universes are shown in hexadecimal notation and Art-Net Net switch / sub-net switch notation in the Network Universe tooltips.

Enable RDM - Allows the device to receive and send Remote Device Management data on the specific port.

- Make sure to disable RDM on the specific port, when using STELLA for DMX-IN.

Device Accepts Network Data From - Defines the data source for the device. Choose from the following options:

- ***Art-Net***
- ***Streaming ACN***
- ***Art-Net And sACN***

DMX Output Configuration This section shows the settings for the DMX ports when used for output [DMX 1 and DMX 2].
Confirm with ***Set***

Channel Offset - Allows you to shift the received DMX universe [512 DMX channels] per port if required.

- This will modify the output.
- ***+1 To +511 -*** Adding a positive channel offset will shift the received channels to higher channel numbers.
  - Example: Received channel #1 will be shifted to channel #11 by using a channel offset of 10.
  - That means that new channels are added to the data [in front of the received data block, with DMX value 0], while any channels that now would be higher than 512 will be removed.
  - Example, continued: Channels 1 to 10 are newly added, while channels 503 to 512 are removed.

- ***-1 To -511 -*** Adding a negative channel offset will shift the received channels to lower channel numbers.
  - Example: Received channel #512 will be shifted to channel #412 by using a channel offset of -100.
  - That means that the first channels will be removed. The frame will be shorter.
  - Example, continued: Channels 1 to 100 are now removed and the frame has 412 channels in total.
- Example: Your fixture should start with DMX channel 7.
  - In the ideal case, you would set its DMX start address to 7.
  - If your fixture somehow is set to channel 6, you could increase its start address by +1.
  - Or you could shift the data that is sent by your device by -1 in order to change the data from channel #7 to channel #6.
  [If you cannot change the fixture's settings or you cannot reach it anymore, for example.]
- Please note: According to the DMX512 standard, a minimum of 21 channels will always be sent.
- A Channel Offset can have several advantages, such as splitting a single universe onto multiple output ports.
  - For example, your sender can only send on one universe and you wish to output it on two ports.
  On DMX 1, you would like to send the first 150 channels and on DMX 2, you would like to send channels 151 to 300.
  Then, you can set both to the same universe and set a Channel offset of 150 for DMX 2.

Channel Order - Allows you to change the order of [color] channels for the output.

- For example, if you receive channels 1-2-3 [i.e. RGB, for example], the setting 1-2-3-(4) will send it out as R-G-B. In contrast, the setting 3-2-1 would send B-G-R. [Please only change this setting when needed and when using simple, standard fixtures with RGB or RGBW, for example.]

Send Full Frames - Activates that always 512 channels will be sent out.

- 512 channels are sent per frame even if the data that is received by the device includes less than 512 channels for this port and universe.
- The device automatically sends values of 0 on channels that are not used.

Output Intensity - Sets the brightness level of the output towards the LEDs by functioning as a dimmer.

- For example, when the device receives a DMX value of 255 on a channel, this would be dimmed to 127 when the Output Intensity is set to 50 %.
- The minimum value is 1 %. The default value is 100 %.
- Can be used alone or at the same time as Upper Intensity Limit. First, the device applies the Output Intensity. Second, the Upper Intensity Limit is applied.

Upper Intensity Limit - Sets the maximum brightness level that can be sent.

- The minimum value is 1 %. The default value is 100 %.
- Can be used alone or at the same time as Output Intensity. First, the device applies the Output Intensity. Second, the Upper Intensity Limit is applied.

In Case Of Missing Network Data - Allows you to specify the output settings should the device not receive data for a specified DMX universe [in both cases, when having never received data in the first place or when the data is not being received anymore and a timeout is reached]. Choose from the following options:

- ***Send The Last Received Frame Continually***
  [If no data is received at startup, black frames will be sent.]
- ***Send Black Frames Continually***
  [If no data is received at startup, black frames will be sent.]
- ***Stop Sending After Sending A Black Frame***
  [If no data is received at startup, black frames will be sent.]
- ***Stop Sending***
  [If no data is received at startup, there is also no output.]

DMX Input To Network

This section allows you to specify settings for DMX input, which is sent out to the network from the device.
Confirm with ***Set***

When data is received, MADRIX STELLA will automatically forward it to Ethernet network.
The device automatically switches to input when receiving data via the DMX ports [DMX-IN]. Since this happens automatically, there is no need and no option to manually switch from output to input.
If both output and input are sent to the device, the device will activate the output.

Send Universe To Network - STELLA can receive 512 channels per port. This setting defines on which universe those 512 channels are sent.

- By default, ***256*** is set for DMX 1 and ***255*** is set for DMX 2.
- Valid values range from 1 to 32768.

Always Send Full Frames To Network - Activates that always 512 channels will be sent out.

- 512 channels are sent per frame even if the data that is received by STELLA includes less than 512 channels for this port and universe.
- STELLA automatically sends values of 0 on channels that are not used.

- ***Art-Net Broadcast Mode -*** Sends Art-Net data to all IP addresses in the network.
- ***Art-Net Unicast Mode -*** Sends Art-Net data only to one recipient, e.g. your MADRIX computer. Enter the IP address of your receiver here.
- ***sACN Multicast Mode -*** Sends Streaming ACN data to IP address 239.255.1.0 for port 1 and to IP address 239.255.0.255 for port 2.

Special Commands

Reboot - Reboot System - Restarts the device completely. [The website will automatically be reloaded after a few seconds.]

Reset - Reset To Factory Default Settings - Restores the original settings of the device. [Since this may change back the IP address to the original setting, the website will automatically be reloaded after a few seconds and you will automatically be redirected to the correct website and IP address.]

Device Information

This section displays various details about the device, including:

- ***Model*** [The device type.]
- ***IP Address*** [The current IP address.]
- ***MAC Address*** [A permanent, unique address.]
- ***Serial Number***
- ***Firmware*** [The current firmware version.]
- ***Bootloader*** [The current bootloader version.]
- ***Hardware*** [The hardware model.]
- ***Voltage*** [The current voltage for Input.]
- ***Temperature*** [The current ambient temperature.]
- ***Ethernet*** [The current status of the network connection.]

MADRIX
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//PART 8

Extra Tools

8 Extra Tools

This topic includes:

Introduction

A number of separate tools support the MADRIX RADAR Software.

Topics Of This Chapter

Learn more about separate tools:

- »MADRIX KEY Firmware Update
- »MADRIX RADAR Quick Support

8.1 MADRIX KEY Firmware Update

This topic includes:

Introduction

The MADRIX KEY itself is a technologically advanced device. That is why it also comes with its own firmware.
In order to function correctly, the MADRIX RADAR Software requires a minimum firmware version for the MADRIX KEY.

MADRIX KEY Firmware Update

Overview

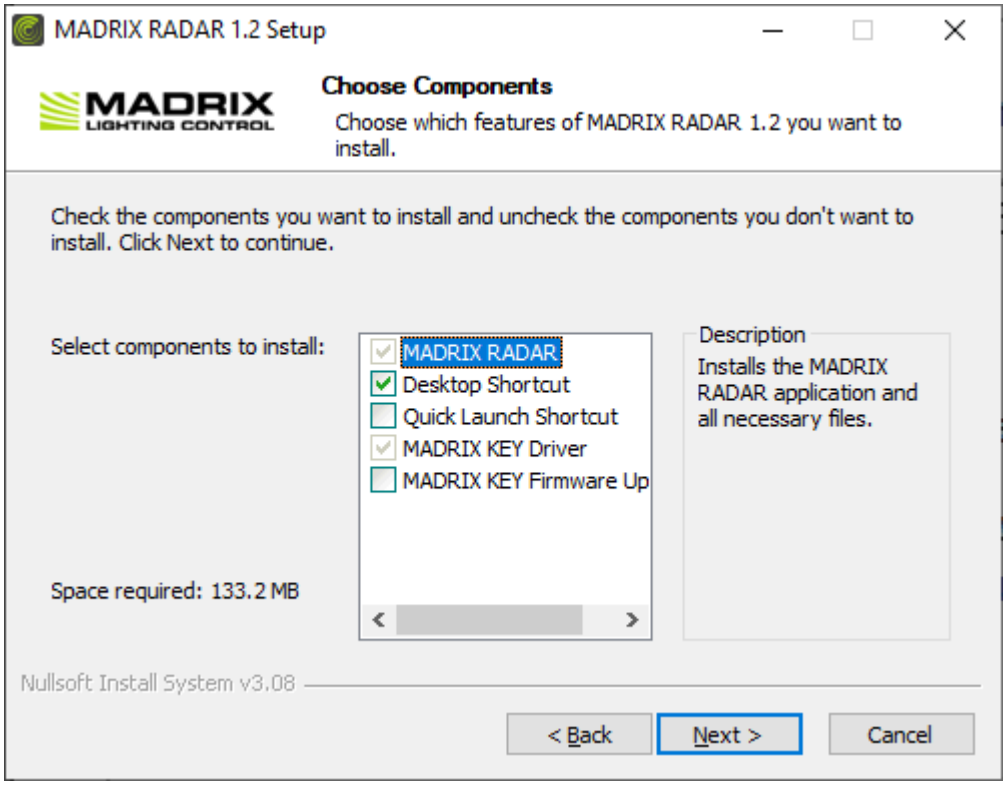
Make sure that your MADRIX KEY uses the correct firmware. You can update the MADRIX KEY firmware in different ways.

- **MADRIX RADAR Software Installation**
- **Help Menu**

MADRIX RADAR Software Installation

During the MADRIX RADAR5 Software setup, you can choose to automatically update all connected USB software protection dongles.

- Make sure to select MADRIX KEY Firmware Update
  [Deselect it if you don't want to update any connected USB security dongles now.]



Help Menu

You can also find the link to the MADRIX KEY Firmware Update in the MADRIX RADAR Software:

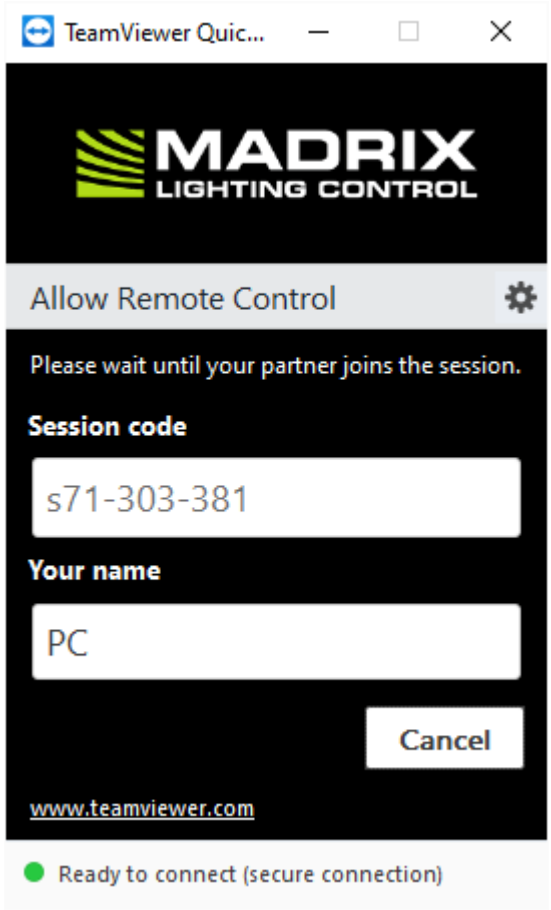
- Go to the menu ***Help > MADRIX KEY > Update MADRIX KEY Firmware...***

8.2 MADRIX RADAR Quick Support

This topic includes:

Introduction

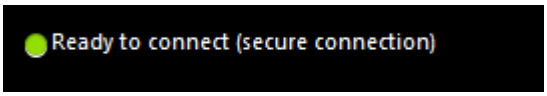
Along with the MADRIX RADAR Software the ***MADRIX RADAR Quick Support*** is provided.



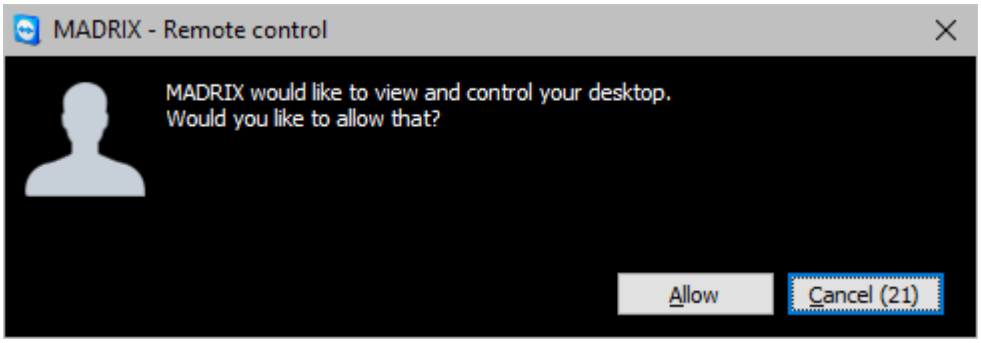
Instructions

- When contacting the MADRIX Support Team, you may be asked by them to use the MADRIX RADAR Quick Support tool for technical support assistance on your computer.
- Click on the shortcut in order to launch it [see below where to find it].

- After the tool has been launched, wait until ***Ready to connect (secure connection)*** is shown.



- The MADRIX Support Team will then be able to connect to your computer.
- A new message window opens that reads: ***'MADRIX would like to view and control your desktop. Would you like to allow that?'***
  Please confirm by clicking ***Allow***



- The MADRIX Support Team will now be connected.

Where To Find

MADRIX RADAR Quick Support is included in the MADRIX RADAR Installer. After installing MADRIX RADAR, you can find the link to MADRIX RADAR Quick Support in the Windows Start menu:

- In Windows 10, go to ***Start > MADRIX RADAR > MADRIX RADAR Quick Support***

The original, executable program can be found in the MADRIX 5 installation directory:

- C:\Program Files\MadrixRadar

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//PART 9

End-User License Agreement [EULA]

9 End-User License Agreement [EULA]

This topic includes:

Copy Of License

END-USER LICENSE AGREEMENT FOR INOAGE SOFTWARE
MADRIX RADAR Software License Agreement
Last Update: 05/2021

This end-user license agreement ('EULA') is a legal agreement between you and the company inoage GmbH ('inoage').
This EULA governs your use of the MADRIX RADAR Software ('software') but not its acquisition, and thereby does not refer to your purchase contract.

IMPORTANT NOTE
PLEASE CAREFULLY AND THOROUGHLY READ THIS LICENSE AGREEMENT. MAKE SURE THAT YOU FULLY UNDERSTAND ALL INFORMATION. BY CONTINUING THE INSTALLATION AND/OR BY USING THIS SOFTWARE, YOU CONFIRM THAT YOU HAVE READ THE LICENSE AGREEMENT, ACCEPT ALL OF ITS TERMS AND CONDITIONS WITHOUT RESERVATIONS, AND AGREE THAT YOU THUS BECOME LEGALLY BOUND TO THE TERMS OF THIS LICENSE AGREEMENT.

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The software can be downloaded for free from the website www.madrix.com and runs in demo mode if you do not connect a valid and activated MADRIX KEY to your computer or use compatible MADRIX hardware interface(s), that is valid MADRIX RDM node(s), to unlock the software's features. Demo mode limits unrestricted usage to the first two RDM devices/sub-devices that are connected. Demo mode can be used for evaluation, demonstration, testing purposes, and productive use.

SOFTWARE LICENSE AND AUTHORIZED USE

You can purchase a MADRIX KEY that includes a software license after activation or use valid MADRIX RDM node(s) to unlock the software's features. The MADRIX KEY or MADRIX RDM node(s) can be used flexibly with different computers if needed, but only unlock the full license once, i.e. at one computer at a time. A full license can only be unlocked by using a valid MADRIX KEY with a valid software license or a valid MADRIX RDM node(s).

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(b) alter, delete, remove, or obscure any identification of the software, copyright note, or any other notes relating to the property restrictions of the software or any part thereof;
(c) bypass, circumvent, overcome, or work around any technical or non-technical means, restrictions, or limitations that are put in place in or together with the software;
(d) copy the whole or parts of the software's documentation.

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(b) As an exception, you may run the software in demo mode for evaluation, demonstration, testing purposes, and productive use as described above.

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Certain third-party software, including features provided by the operating system, and/or SDKs and drivers are required for specific software features. Please note that all of these tools may be subject to their own, separate end-user license agreements or similar terms and conditions.

CONTACT

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Web: https://www.madrix.com

ACCESS

This EULA will also be made directly available as a text file in the default installation directory of the software.

CONSENT

By clicking 'I Agree', you hereby confirm that you have read, consent to the described policies, and accepted the license agreement as provided above.

MADRIX
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//PART 10

Qt [Legal Information]

10 Qt [Legal Information]

This topic includes:

Included Libraries

MADRIX RADAR uses the following libraries of the Qt development framework.

The libraries and their use are covered by GNU LGPL v.3.

- Qt5Core.dll
- Qt5Gui.dll
- Qt5Network.dll
- Qt5Sql.dll
- Qt5Svg.dll
- Qt5Widgets.dll
- Qt5Xml.dll

- qgenericbearer.dll [Qt Plugin DLL] [.../bearer]

- qsvgicon.dll [Qt Plugin DLL] [.../iconengines]

- qgif.dll [Qt Plugin DLL] [.../imageformats]
- qicns.dll [Qt Plugin DLL] [.../imageformats]
- qico.dll [Qt Plugin DLL] [.../imageformats]
- qjpeg.dll [Qt Plugin DLL] [.../imageformats]
- qsvg.dll [Qt Plugin DLL] [.../imageformats]
- qtga.dll [Qt Plugin DLL] [.../imageformats]
- qtiff.dll [Qt Plugin DLL] [.../imageformats]
- qwbmp.dll [Qt Plugin DLL] [.../imageformats]

- qwebp.dll [Qt Plugin DLL] [.../imageformats]

- qdirect2d.dll [Qt Plugin DLL] [.../platforms]
- qminimal.dll [Qt Plugin DLL] [.../platforms]
- qoffscreen.dll [Qt Plugin DLL] [.../platforms]
- qwindows.dll [Qt Plugin DLL] [.../platforms]

- qsqlite.dll [Qt Plugin DLL] [.../sqldrivers]
- qsqlpsql.dll [Qt Plugin DLL] [.../sqldrivers]

The complete, corresponding, and machine-readable source code of these files, including the license text, is available:

- On the MADRIX Software USB flash drive, in the subfolder ThirdParty. For example, D:\ThirdParty
- Online at https://www.madrix.com/support/download/

Copy Of License

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

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You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or

b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.

3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.

b) Accompany the object code with a copy of the GNU GPL and this license document.

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d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of

the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

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MADRIX
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//PART 11

Qwt [Legal Information]

11 Qwt [Legal Information]

This topic includes:

Included Libraries

MADRIX RADAR uses the following libraries.

The libraries and their use are covered by Qwt License Version 1.0.

- qwt.dll

The complete, corresponding, and machine-readable source code of these files, including the license text, is available:

- On the MADRIX Software USB flash drive, in the subfolder ThirdParty. For example, D:\ThirdParty
- Online at https://www.madrix.com/support/download/

Copy Of License

```
                        Qwt License
                    Version 1.0, January 1, 2003

The Qwt library and included programs are provided under the terms
of the GNU LESSER GENERAL PUBLIC LICENSE (LGPL) with the following
exceptions:

    1. Widgets that are subclassed from Qwt widgets do not
       constitute a derivative work.

    2. Static linking of applications and widgets to the
       Qwt library does not constitute a derivative work
       and does not require the author to provide source
```

code for the application or widget, use the shared
Qwt libraries, or link their applications or
widgets against a user-supplied version of Qwt.

If you link the application or widget to a modified
version of Qwt, then the changes to Qwt must be
provided under the terms of the LGPL in sections
1, 2, and 4.

3. You do not have to provide a copy of the Qwt license
with programs that are linked to the Qwt library, nor
do you have to identify the Qwt license in your
program or documentation as required by section 6
of the LGPL.

However, programs must still identify their use of Qwt.
The following example statement can be included in user
documentation to satisfy this requirement:

[program/widget] is based in part on the work of
the Qwt project (http://qwt.sf.net).

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Version 2.1, February 1999

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of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
as the successor of the GNU Library Public License, version 2, hence
the version number 2.1.]

Preamble

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freedom to share and change it. By contrast, the GNU General Public
Licenses are intended to guarantee your freedom to share and change

free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

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For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

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restrictive license from a patent holder. Therefore, we insist that
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  When a program is linked with a library, whether statically or using
a shared library, the combination of the two is legally speaking a
combined work, a derivative of the original library. The ordinary
General Public License therefore permits such linking only if the
entire combination fits its criteria of freedom. The Lesser General
Public License permits more lax criteria for linking other code with
the library.

  We call this license the "Lesser" General Public License because it
does Less to protect the user's freedom than the ordinary General
Public License. It also provides other free software developers Less
of an advantage over competing non-free programs. These disadvantages
are the reason we use the ordinary General Public License for many
libraries. However, the Lesser license provides advantages in certain
special circumstances.

  For example, on rare occasions, there may be a special need to
encourage the widest possible use of a certain library, so that it becomes
a de-facto standard. To achieve this, non-free programs must be
allowed to use the library. A more frequent case is that a free
library does the same job as widely used non-free libraries. In this
case, there is little to gain by limiting the free library to free
software only, so we use the Lesser General Public License.

  In other cases, permission to use a particular library in non-free
programs enables a greater number of people to use a large body of
free software. For example, permission to use the GNU C Library in
non-free programs enables many more people to use the whole GNU
operating system, as well as its variant, the GNU/Linux operating
system.

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The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for

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2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse

engineering for debugging such modifications.

  You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

    a) Accompany the work with the complete corresponding
    machine-readable source code for the Library including whatever
    changes were used in the work (which must be distributed under
    Sections 1 and 2 above); and, if the work is an executable linked
    with the Library, with the complete machine-readable "work that
    uses the Library", as object code and/or source code, so that the
    user can modify the Library and then relink to produce a modified
    executable containing the modified Library. (It is understood
    that the user who changes the contents of definitions files in the
    Library will not necessarily be able to recompile the application
    to use the modified definitions.)

    b) Use a suitable shared library mechanism for linking with the
    Library. A suitable mechanism is one that (1) uses at run time a
    copy of the library already present on the user's computer system,
    rather than copying library functions into the executable, and (2)
    will operate properly with a modified version of the library, if
    the user installs one, as long as the modified version is
    interface-compatible with the version that the work was made with.

    c) Accompany the work with a written offer, valid for at
    least three years, to give the same user the materials
    specified in Subsection 6a, above, for a charge no more
    than the cost of performing this distribution.

    d) If distribution of the work is made by offering access to copy
    from a designated place, offer equivalent access to copy the above
    specified materials from the same place.

    e) Verify that the user has already received a copy of these
    materials or that you have already sent this user a copy.

  For an executable, the required form of the "work that uses the

Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

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To apply these terms, attach the following notices to the library. It is
safest to attach them to the start of each source file to most effectively
convey the exclusion of warranty; and each file should have at least the
"copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

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Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

```
You should also get your employer (if you work as a programmer) or your
school, if any, to sign a "copyright disclaimer" for the library, if
necessary.  Here is a sample; alter the names:

  Yoyodyne, Inc., hereby disclaims all copyright interest in the
  library `Frob' (a library for tweaking knobs) written by James Random Hacker.

  <signature of Ty Coon>, 1 April 1990
  Ty Coon, President of Vice

That's all there is to it!
```

MADRIX
LIGHTING CONTROL

//PART 12

Sourcetree [Legal Information]

12 Sourcetree [Legal Information]

This topic includes:

Overview

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MADRIX
LIGHTING CONTROL

//PART 13

Imprint And Copyright

13 Imprint And Copyright

This topic includes:

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Qt

See **Qt [Legal Information]**

Qwt

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Sourcetree

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